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TOP OF THE MONTH

EQUIPMENT reliability. Back again. After our CSD April issue equipment reliability survey (form), we have several hundred survey forms completed and thousands of 'data bits' to tally. There were some surprises. Drives and antennas, in that order, drew the most comments. Negative comments. Receivers fell in the middle ground and LNAs (with scattered repair problem exceptions) brought up the end. In this case, bringing up the end was best!

Several dealers asked for some way to 'warranty' or 'guarantee' equipment, above and beyond the factory guarantees. That got us to thinking, and talking with some top people in the insurance and 'service contract business.' Coop reports on these discussions in this month's 'Comments.'

BOOM times are here, if you talk with most of the manufacturers. The established products with proven field records are experiencing severe delays in shipping, in many areas. Add to this the 'apparent' TVRO explosion in Canada, and you have the frightening prospect that thousands of consumers will go without the TVRO they long for, this year, simply because the gear is not available. See 'Comments' in this issue.

LATE this month the apparently badly undersized Minneapolis facility selected by STTI will be home for the next gathering of the clan. CAN-AM '83. It is all beginning to look as though 1983 IS the year of the home TVRO and if you are planning to be a part of this industry, you should arrange to attend CAN-AM '83, even if you have to get a hotel in Duluth and commute!

JUNE 1983

COOP'S COMMENTpage 2 EQUIPMENT RELIABILITY SURVEY (Part One)page 8
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LIMIT CONTROL FOR ACTUATORS (Chris May) page 26 LEARNING/LEARNING/LEARNING
(Rolland H. Nielsen) page 30

(J.J. Hayes) page 34

THE ROOTS OF TVRO (Part Seven) page 36

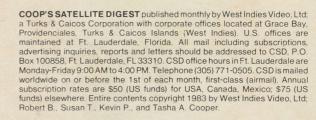
CORRESPONDENCE...... page 46

POSITIONING TRIPOD MOUNTED DISHES



OUR COVER - 'Showtime,' and, the perfect set. International Crystal Manufacturing's Royden Freeland (left) and true TVRO pioneer and author Steve Gibson are ready for another STTI show! This was San Jose's STT show in July of 1980; Freeland introduced a TVRO receiver with the unbelievably low price of \$995; Gibson demonstrated poolside reception from Russia's Molniya satellite. And 800 plus people had a great

COOP'S SATELLI DIGEST



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COOP'S SATELLITE COMMENT

- SAT-SCENE ON THE AIR
- ABC ATTACK ON TVROs
- DISTRIBUTOR FOUL-UPs

WHAT BUSINESS Are You In?

Charles Updyke operates a firm calling itself 'The Earth Station,' out of Kirksville, Missouri. This is one of those rural America spots where satellite should do very well at the home level. Kirksville has one consistent television service and some 'fringe service' from not very close VHF stations. A fellow can get alot of channels on his television, in the Kirksville area, but none of them very well, and then only when 'the weather is right.'

Charles bid a job for an SMATV system in Fort Dodge, lowa. He had to get some pricing and engineering information for his distributor so he told the distributor about the job. Charles lost the job, but lo and behold, the distributor with whom he talked about the job did get it. Charles wonders just what type of distributor this firm is when it goes in and bids against its own dealers. Charles suspects the distributor may have found out about the job from his own conversations with the distributor.

That's not the only incident of this type, with a distributor, for Charles Updyke. Previously he had been buying from a distributor over in Indiana. He was paying \$1795 to pick up an ADM antenna, a Drake ESR24 receiver a 120 degree LNA. He was relatively content with the distributor until he found out that **anyone** could call up or walk into the store, buy just one system, and walk out. For \$1895. Charles wonders whether a \$100 discount, for a dealer, is a fair and reasonable way to keep dealers coming back.

Bill Miller down in Tampa, Florida writes that he feels it is too late for the industry to clean up its act; defining (1) distributors, (2) dealers, and (3) customers. Bill may be correct, but I hope he is not. This whole problem needs some added visibility.

OEMs tell me that the only thing that separates a distributor from a dealer is volume. Some of the OEMs extract purchase commitments from their distributors, and in return for signed, bankable purchase orders, they extend the maximum price discounts. One of the LNA suppliers, an OEM in this case, is cutting some really sweet deals at the 5,000 per year volume class.

Let's look at this volume thing.

This is a very capital intensive industry. The LNA supplier, for example, is faced with stiff competition. He has to keep choping his price or he will soon lose out to the guys who got started before him, and who have thousands of units going out the door per month. If our LNA-OEM-example wants to stay in business, he has to grow big, fast. There is no other way he can compete. But to grow big, fast, he has to have money. Lots of money. More money than he can raise by mortgaging his house. More money than he can raise by selling stock to friends. So he goes to his potential customers and he works out purchase commitments. He agrees to a good price, and a satisfactory delivery schedule, in return for a piece of paper. That piece of paper is an agreement that the distributor will take 5,000 or more LNAs over 12 months. That works out to just over 400 per month.

If the agreement is binding, and if the LNA OEM's banker is cooperative, the LNA OEM can get some money advanced against that piece of paper. Maybe as much as 50%. That money is not given all at once; it is partialled out a share a month, over the 12 months of the purchase agreement. But the money is in the hands of the LNA OEM before he ships the LNAs, and that gives him growth and expansion and working capital.

Now at the distributor level, the game could be played again, in the same way. He looks for perhaps 40 dealers, ecah of whom are willing to sign a piece of paper saying they will take 10 LNAs per month, at a price that fits that type of volume. If the distributor finds 40 such dealers, then he has his own pieces of paper which he can take to the bank and get some advance cash. Normally the banker will lend far less, in advance, to the distributor, than he will to the OEM, since the OEM's banker is looking at one signature and one agreement against which he is advancing money, and the distributor's banker is looking at 50 signatures and 50 pieces of paper. Bankers like to lead an uncluttered life and one piece of paper is far easier for them to file than 50 pieces of paper.

Now we have the dealer. He would love to be able to get ten people to sign pieces of paper saying that they will buy one system per month for 12 months, but that is very unlikely. So the dealer has to get out there and hump, on a daily basis, to try to find one person who will buy a new system say every two business days. Then the dealer has to order in the equipment, or if he has made a commitment for ten complete systems per month, try to make the sale he has just made 'mesh with' the scheduled delivery of the next units he has pre-ordered. The dealer may be able to get a sizeable down payment out of his customer, but don't count on it. The dealer, more often than not, will not get paid for his work until he has completed the installation and made the system work to the customer's satisfaction.

The whole 'house of cards,' then, that begins at one end at the OEM who is trying to get money from his banker against a purchase commitment from a distributor, really ends up depending totally upon the Charles Updykes of the world who have to get out there and sell, and sell, and, install and install, to keep the wheels turning.

Returning to the problems Charles is having with distributors, if he is selling systems against a distributor who sells not only 'wholesale' to Charles as a dealer, but also 'retail' to any consumer they can get a lead on, Charles is in a world of hurt. If Charles is forced to compete with another distributor who increases the dealer price on a \$1800 system by a hundred bucks, and then sells it to anyone who walks in the door with cash in hand, never to be seen again, Charles is in a world of hurt.

There are hundreds, probably thousands of Charles Updykes out there trying to make a living for themselves, and trying their best to understand how they are going to survive when the people they keep in business seem so intent on putting them out of business.

There is only one explanation for distributors acting this way; **greed.** I won't accept 'dumb,' nor will I accept 'sloppy business practices' as a suitable excuse. I see it as plain and simple greed.

Unless the distributors I talk with and communicate with are fibbing to me, there is a considerable shortage of equipment these days. At least there is a shortage of good equipment. Why, then, would a distributor continue to sell directly against his established or hoped for dealer accounts; or, mark up a package by another hundred bucks and then sell it to the first consumer that walks in off the street?

Greed. I see no other explanation.

Yes, that type of greed spawns stupidity. Or perhaps it is spawned by stupidity. A distributor who engages in such activities will sooner or later find he is nothing but a dealer himself; he will, ultimately, lose all of his dealer accounts.

You may disagree on that premise. You may believe that for every dealer that gets stung in this fashion, there will be another would-be dealer along tomorrow who will walk in, buy one terminal at the \$1895 price, and then if he is lucky and successful, sell it and come back. Sooner or later he will 'qualify' for the 'special' \$1795 price. Until he, too, tires of being in competition with a distributor that sells \$100 higher than 'dealer' cost to anyone who walks in the door. And then the cycle repeats itself all over again.

I notice with some interest, and mixed emotions, that out in Utah there is a group trying to get a national **dealer association** off the ground. There is more than ample reason why the Charles Updykes of the world might seriously consider joining a well designed, well thought out national dealer association. Several of those good

reasons are evident here.

What concerns me about a national anything, however, is that it is either by intention, or direction, scheduled to be a 'buying cooperative' before it gets all done. When you get 100 dealers that belong to and support a 'national dealer association,' pretty soon some smart guy suggests that they all go together, to the LNA manufacturer for example, and 'pool' their buying power for some LNAs. If **one** distributor can sign a purchase order for say 400 LNAs per month, why can't **100 dealers** through a national association sign **their own purchase order** for 400 LNAs per month. Less a modest national association handling fee, the dealers that belong to such a group would in short order find they were getting LNAs now for far less than they are presently paying their distributor.

I say this concerns me. I am not concerned that the dealers might not get a better deal this way than they are now getting. I am concerned that the distributors would continue to operate their shops in

such a way that they would allow this to happen.

All of this turmoil could be avoided if the distributors who insist on being greedy would re-evaluate their rules for sale. I think Bill Miller down in Florida **could be** wrong; I think there is still time for the distributors to straighten out the way they approve sales to dealers at dealer pricing.

The level of selling that stands to lose the most here is the distributor. The OEM is going to sell his equipment anyhow. Whether he sells it to a distributor who signs a 5,000 lot purchase order, or to a dealer association that signs a 5,000 lot purchase order, he'll be there tomorrow. The dealer is going to sell the consumer, at the 'bottom end of the ladder,' no matter what. He is there to stay, although individual dealers may come and go in the turmoil. But the guy in the middle . . . the distributor, has plenty to be concerned about.

Changing policy will hurt for a short period of time. But properly handled, it will be a very temporary hurt. **Now**, when equipment is in short supply anyhow, **is an excellent time** to put that change into

ffect.

And if this does not happen?

I predict many of the so-called distributors will be out of business, or selling a far smaller selection of equipment and brands, one year from now. They will be the victims of their own greed. It is just that simple to understand.

CONCENTRATED Attack

It is no accident that ABC in concert with ESPN is promoting 'Pay Per View' fights (this past May), and, we find ABC devoting more than four minutes of their valuable news time on **World News Tonight** to 'video pirating.' The case in point ran on ABC on Tuesday the 26th of April and it was a blatant attack on our industry and others we prefer not to be associated with.

ABC reporter Lynn Shearer tied the piece together by bringing in video shot at the Las Vegas STTI show, a backyard in Miami, MPAA's Jack Valenti, a couple of guys in Minneapolis where MDS theft is rampant, and our industry's own Bob Behar. The tag line on the piece was that everything you watch on television is 'no longer free.'

Back twenty years or so ago the television antenna manufacturers had a campaign going. Some of those in this industry now, such as Winegard, sponsored an organization that attempted to point out to America that they were losing their 'free TV viewing rights' to a new insidious monster called cable TV. This group of antenna manufacturers spent millions of bucks 'educating' city fathers and others on the 'evils of cable TV.' What they basically claimed was that when a home

hooked up to cable, it was losing its 'free connection' to the world; a connection that was only possible when you had your TV set connected to your own antenna.

The same group also lobbied that towns, were they foolish enough to grant a cable franchise, outlaw the cable firms offering a trade in of their 'old TV antenna' for a cable connection, and, insist that the cable firms include an 'A/C' (antenna, or, cable) switch in every installation so that the cable subscriber still had the option of switching back to his antenna if he wanted to do so. There were some pretty ugly moments in this campaign; cable was 'stealing' television signals it was not paying for (we've heard that one recently, haven't we!), cable viewers 'might' (they warned) become 'accessories' in theft and so on. The group died by swallowing too much of its own propaganda and choking on its own words, after a few year run.

Now we find ABC heavily involved in cable, and more recently, pay television. Somebody at ABC wanted the world to know that 'not all television is free,' and, you are a law breaker if you watch something

you have not paid for. On cue, MPAA's Valenti said that anyone watching **any** satellite television is a thief. Valenti characterized sat viewers as 'well meaning, middle class Americans' who simply are mis-guided by guys like you and me into believing that everything in the air is 'free.' Then, on cue, ABC found a dish owner in South Florida

who said 'I believe the airwaves are free; they (meaning HBO et al) use the airwaves, so why can't I use them too?'.

The piece failed to separate MDS signal thievery from satellite viewing. The piece failed to explain that of the 100 plus satellite channels available, only a handful are 'sold' as premium program channels. The piece showed us what 'scrambling' was going to look like, and they did this after talking about 50,000 home TVROs being in operation today (their out of the sky number), and reporting that 'industry sources expect that number to double this year.' Their message here was that anyone buying a dish is a fool since the satellite channels are ALL going to be scrambled soon. HBO was mentioned.

Bob Behar's part, all 5 seconds of it, was our industry's one shot. Bob told the ABC audience that our industry had attempted to pay for the programs but the services were not accepting our money. ABC bounced back with anther HBO mention that said, in effect, 'we won't sell to private homes; it is too much trouble to bill them.'

I see the seeds of another 1960's campaign coming upon us. ABC prepared this one because they have an 'enlightened self interest'; protecting their own product. Their ESPN/ABC pact to bring major fights into selected living rooms is at the root of this of course. ABC wants to do what it can to slow down, or stop, home TVRO sales and they are starting this campaign now because of their own pocketbook. Not because they are good journalists wanting to cover a story.

When Lynn Shearer closed the piece, she paraphrased a favorite Taylor Howard phrase. "The time has come for the laws to catch up with the technology." In other words, she was sending a message to Congress, for and via ABC, that Congress needed to straighten out the laws and get busy making it plainly illegal to own and operate a TVRO.

This was not a one-shot deal.

ABC is working now on a much more detailed piece on the same subject. I have no inside knowledge of whether it will end up on 'Nightline' or make the big time; '20/20.' But it is coming. One of the small bits they were chasing back in mid-April involves your friend and mine, ABC newscaster Max Robinson. The Max-Antics-Hour, on Westar 4, has been a favorite target of satellite watchers for many years. ABC called our CSD office in mid-April asking us to help them find (their description) "a bar in South Carolina, with a dish antenna, where the bar features a 'Max Robinson Bloody Mary Cocktail Hour' that coincides with the regular feed of ABC's Chicago based contribution to World News Tonight." They wanted to send a camera crew to this bar to shoot the patrons sitting around with their own Bloody Marys watching and cheering on Max with his Bloody Mary. You can guess how helpful CSD was to ABC with that request!

I guess the message through all of this is two-fold. First of all, we continue to be a loosely federated industry with something less than full and universal support for our one and only trade organization; SPACE. When something like this gets started, the resources of an

COOP CONTINUES / page 58

Not so long ago, a few smart dealers decided these companies had some possibilities.

Now Amplica is introducing the first Home Satellite System designed from the ground up. See it at the Chicago CES, Booth 3600 and the Minneapolis STTI, Booths 114-115. And get in while you can.

THE AMPLICA HOME SATELLITE SYSTEM I

EQUIPMENT RELIABILITY SURVEY

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Enlightening Data

CSD approached the concept of going 'to the industry' for confidential reports on dealer/distributor experience with products and suppliers with some trepidation. We could, when it is all said and done, lose a big bunch of our advertisers in this exercise!

Then, it seemed, each time we waivered on the line not sure which way to go, we would open a new mail bag sent down from Fort Lauderdale and there would be another two or three letters from dealers in New Mexico or Idaho or Tennessee reporting on long, sad, expensive experiences with this brand of LNA or that brand of motor drive or . . . you name it.

So we plunged ahead determined that if we can save a few dealers some grief, we are doing the right thing by bringing out the general 'trends' within the industry vis-a-vis products, the way they work, and the problems dealers are having with those products and the suppliers who make them available. We will, undoubtedly, lose some advertising support in the coming months. There will be those who in particular care — not for some of the 'soapbox comments' and detailed 'reports' that lace this detailed look at the state of our hardware, and our suppliers, today.

Some will suggest that if a firm is selling bad product, it has numbered days ahead anyhow and sooner or later they will fold up, or change their name and reappear as a new world beater company. At least one correspondent complains of a firm that has changed its name three times to date, to apparently escape possible prosecution for mail fraud and other 'crimes' against the unsuspecting dealer.

Others will, and should, point out that as any business grows in volume, there are going to be less than honest **dealers** as well as less than honest distributors and OEMs (original equipment manufacturers). And that a less than honest dealer will look upon this type of **CSD** forum as a 'tool' to attempt to force or coerce an honest and hard working distributor or manufacturer into agreeing to something which the dealer has no right to be asking.

A survey, involving hundreds of responses from hundreds of dealers and distributors, is relatively immune from 'loading'; that is, **one** guy with a vendetta against a particular supplier changing the overall face of the results. Our 'soapbox' segment, where those with problems (or praise; we got both types of comments) have the opportunity to 'sound off' is not so shielded from the vendetta carrying chap. We hope that we are experienced enough to see through the **obvious** attempts to coerce or 'get even with' a distributor or OEM in this segment; we had to eliminate about 12% of the 'soapbox comments' from publication consideration because we could not tell with reasonable certainty whether the knife being carried was an 'attack,' or a 'defense' weapon. Some that we should have eliminated may get through in what follows, nonetheless, and we'll sort all of that out in

Overall, the response was excellent. Canadians, as a group, did not respond as we hoped. The cross section of dealers was however excellent; from those who have just a few installations under their belts to those who have done 100 or more in the past 15 months or less. The most frequent comment we read from the 'old timers' was that it took them a year, on the average, to learn which brands and products to avoid, and which to use in their own installations. We read this so often

that we have a new rule of thumb for new dealers; don't give up on the industry until you have put in at least a year's apprentice time. During that year, **attend at least one** industry trade show (even if it wipes out your profits for several months, to do so!), and read **everything** you can get your hands on. Follow people around who have been in it longer than you, and listen — listen — listen. If you do this for a year, you'll make it!

An Example

We'll start the lengthy data report with a letter that accompanied a survey form. We have eliminated the name of the writer (he asked us to), and we have eliminated the name of the 'distributor' whom he references in this letter. This report typifies the kind of shenanigans that go on, even today, and it will serve as a proper warning for the data that follows.

"In the summer of 1981 I decided to invest up to \$5000 in a dish, to see what might be done in my area as a dealer. I was employed at the time by one of the major US television networks and it was my chore each day to report to duty just ahead of 4 AM to supervise the linking of a satellite fed program insert that ran on one of the early morning network programs through a Westar satellite. I was, at the time, in charge of a down and uplink station.

"I also dabbled in computers and I kept seeing a listing in 'The Source' (databank information service) for a chap in the northeast who said he had a home TVRO system for sale for under \$5,000. This chap would update his listing every few weeks and he often used Coop's name in his reports. Such as 'I have just returned from the fifth Bob Cooper Satellite Antenna Seminar...' and then he would tell anyone who was plugged in about all of the wondrous things he had seen and what a good deal his TVRO package was. So I exchanged messages with him via 'The Source' and then decided to drive to the place where he had his business; some 650 miles away. All of this time he was telling me, via 'The Source,' that he had a special 12 foot antenna system package for \$4925. Remember... this was 1981!

"When I got there, with my wife, he said he did not have the system set up at that moment but if we would come back the next morning, it would be operating. We went to a local motel and returned in the morning. What we saw was a \$12,000 system on a trailer. Oh, it worked fine, alright! But now he said, after promising us that he had the advertised \$4925 system ready to demonstrate and sell, that it was not available at that time. But this \$12,000 system was ready to roll. I think they call that bait and switch!

"I returned home without the system. But I did learn one thing while I was there; I learned about **CSD** and I had scribbled down the address of the magazine before leaving. I promptly subscribed and after getting the magazine I found a 'source' (small 'S' this time) for a 13 foot antenna package and a popular brand of receiver. I ordered the system. In a few weeks time it came and I began to assemble it in the early winter, between snow squalls and below zero temperature spells. I then discovered that the 'hub' to the antenna was missing; lost, it turned out, by the shipper. Now a few more weeks of waiting

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WITH OUR NEW HOME SATELLITE TV SYSTEM **FEATURING A TOP PERFORMING 8-FOOT DISH AND HIGH QUALITY RECEIVER**

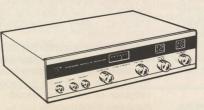
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NEGARD

FOR MORE INFORMATION on Winegard's Home Satellite TV System, write Winegard Company, 3000 Kirkwood St., Burlington, IA 52601 or call (319) 753-0121.

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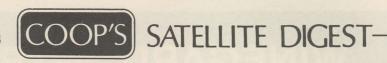
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PAGE 10/CSD/6-83



while the hub was found (it was) and then back to working in the snow squalls. Eventually I had the system operating, but barely. Intermittent would be the appropriate technical term. I had treated the expensive receiver with such care that I had not noticed at first; the cabinet mounting screws were missing. The top simply slid right off! That made me suspicious that my intermittent problem might be related to the receiver, and not the LNA or feed or cabling. I borrowed a field strength meter from work, and checked to see if I had a decent 70 MHz IF signal. I did. That told me the problem was in the receiver or demodulator proper.

"Now I had a new problem. Should I send it back to the 'distributor' whom I bought it from; remember I was now suspicious that this brand new receiver I had been sold was at least not 'new.' Or should I call the company and return it to them. I opted for the later, still stinging from my first experience with a 'Distributor' who advertised on 'The Source.' I was not feeling very good about distributors in this industry at all, at this point. But after a decent interval, I felt pretty good about manufacturers; the demodulator portion came back from the factory with a lengthy note explaining what they found wrong, and when I plugged it in, it worked. Oh yes, the factory note confirmed my original suspicion. I had not been sent a 'brand new' receiver. It had a service history as long as my military discharge papers!

'And so, finally, after several months of false starts and plenty of wasted time and effort, I found out that it is possible to have good looking pictures here in the suburbs of Chicago, just like (well, almost just like) we do on the big 11 and 13 meter dishes 'at work' out at Lake Geneva; at the uplink site

Bait and switch. We had it in 1981. We still have it today. And 'brand new equipment' that is, perhaps, not so brand new? Well, as we shall see later in this report, things haven't changed much there in 30 months or so either!

THE Antennas

There were 33 antenna 'brands' mentioned in the survey results. This is slightly misleading for two reasons:

Number one: Many manufacturers have more than one antenna in their full line, and most respondents failed to identify which antenna model (size) they were using or reporting on;

Number two: We eliminated for listing purposes any brands which did not have at least a minimum mention in 2.5% of the total survey forms returned. This means that many little known, or not well distributed antennas, are not listed. They may well represent excellent quality and value, but lacking a significant (2.5% of total or better) reporting base, we felt that the tabulations for such 'lesserrans' might not be representative of their true field performance (good, or bad).

The Antenna Survey Results Table shows how those that were rated did in the poll. An explanation of how this table works (see notations at bottom of table, as well)

1) The company (brand) appears on the left.

2) How that brand rates with distributors is the first percentage column to the right. ADM, for example, has a 100% rating with those distributors submitting survey forms. That means that every distributor who mentioned ADM was telling us that ADM is good or excellent with warranty repair, parts replacement, and so on. None rated ADM poor in this regard.

3) How the brands rate with dealers is the next column to the right. Dealers were asked to rate the products for performance; how well the products work. Again, using ADM as an example, 80% of the dealers 'voting' said ADM was a superior product.

4) The next three columns are inter-related. Under the general heading of Composite Ratings, we see first "% Mention." This is an indication of what percentage of the total number of distributors and dealers reporting mentioned ADM for any reason (good, or, bad). The middle column under composite is headed "% **Positive**," and it means of all of those mentioning ADM (our example), 89% (in ADM's case) said something positive about the firm and its products. This is the total of both the distributors, and, the dealers. Finally, the counterpart number to saying something positive; and that is saying something negative. In ADM's case, 11% said something negative.

If you go back and check the percentage of distributors (first column) that rated ADM for warranty repair and replacement, you see that it was 100%. That means, as the second column indicates, that where ADM 'fell down' was with the dealers; the 11% loss from a 'perfect score' came in the performance department, in the eyes of some (20%) of the dealers who use and reported on that antenna line.

It is important to understand, with this first (antenna) table, and those that follow, that while we had a minimum cut-off to be listed (i.e. firms must be mentioned in this case in 2.5% of the forms returned, or more, or they were not listed), we also have a second category of firms which fall above the 2.5% cut-off point, but which fall too low down the scale to have what we consider a true indication of field results. In the antenna listing, see 'Alpine.' The first column, 'Distributor Rating.' has 100% (**)." That means that 100% of the distributors mentioning this brand-line liked it for warranty and replacement. But the double asterisk (**) tells you that overall, we had too few total responses that mentioned Alpine to give us a true report on the national (or regional) status of that product. Alpine, for example, under the 'Dealer Rating' column to the right has a n/a listed. That means too little data (or no data/reports) from dealers, and therefore no rating at all. The double asterisk firms, then, fell between the 2.5% minimum for no listing and the 4.5% level which we determined was the minimum to give them a 'share-of-responses' listing ("% Mention"; third numerical column to right).

Finally this notation concerning antennas. Those firms that had the highest responses, good or bad, have their last three columns in bold face print. For good or bad, these were the leaders.

Were there any surprises? It depends, of course, on where you are

Products Which We Presently Feel Are TOP PERF

Antennas:	TEI(1. 1. 1	VAN:	eL,
LNAs:	AVANTER	, CALF.	AMPLI	rien .
Receivers:	DUTOMAY	ow, Techa	raques	DRAILE,
Motor Drive	es: TEI	COUR	owa)	Y TOF
Other:				

sitting. For Harris to be mentioned by 7% of the survey respondents shocked us; our April CSD report on the workings of the Harris Delta Gain 10 footer attributed but just over 1,000 total antennas produced to Harris in this particular model. That is a significant number to Harris, we are sure, but it does not equate to the 13,000 or so antennas produced by ADM, for example. ADM topped the list, by the way, with "12% mention.

Two antenna brands that did exceptionally poorly were the AgCom and Vidare units. Both polled total negative votes and remember their 3% and 6% "mention" rating does not mean they had 3 and 6 negative votes each. Both had far more than that; the 3% and 6% is an indication of 'percent of mention' against total votes cast. There were hundreds of total votes.

Antenna Soapbox; "More dealers should be made aware of the poor performance of small dishes, and possible future problems as the present, new, generation of birds gets older and their footprint powers decrease (Victoria, British Columbia). "Prodelin antennas seem prone to cracking, and they can easly be broken" (Holly, NY). "Sales Inc. in Cleveland sold me their backfire feed (it was junk!) and told me after I bought it that they were not the manufacturers and would not stand behind the design. Yet when they were trying to sell it to me, they claimed it WAS their design. That was before they, too, found out it was junk!" (Harwood, Md.) "Every Janeil antenna requires monthly service calls for rust removal and repainting" (Mabank, Tx). "Despite the rave reviews over the Paraclipse 12 footer I am skeptical about the overall strength of the framework under adverse weather. I had bad feelings about the Janeil antenna and fortunately never got involved with them. I hope my initial suspicions about Paraclipse's framework are just the product of a conservative mind . . . but I have a hunch!" (Homer, Alaska).

ANTENNA SURVEY RESULTS/ Survey respondents were asked to rate antenna OEMs for prompt warranty/guarantee repair, replacement (distributors); for Top Performance (installing dealers).

Antenna OEM	Distributor Rating	Dealer Rating	C	omposite Ratings	
			% Mention (*)	% Positive	% Negative
ADM	100%	80%	12%	89%	11%
AgCom	n/a	0%	3%	0%	100%
Alpine	100% (**)	n/a	n/a	100%	0%
Andrews	100% (**)	50% (**)	n/a	67%	33%
Apollo 9'	n/a	0% (**)	n/a	0%	100%
Astro 10 (Sales Inc.)	0% (**)	0% (**)	n/a	0%	100%
Birdview	n/a	100% (**)	n/a	100%	0%
Boman (***)	n/a	0% (**)	n/a	0%	100%
Channel Master	100% (**)	100% (**)	n/a	100%	0%
ComTech	n/a	100% (**)	n/a	100%	0%
Cryson (Longs)	n/a	0% (**)	n/a	0%	100%
Danex	n/a	100% (**)	n/a	100%	0%
DH	n/a	100% (**)	n/a	100%	0%
Equinox 12'	n/a	0% (**)	n/a	0%	100%
Fiberglass Unlimited	n/a	100% (**)	n/a	100%	0%
General Instruments	n/a	100% (**)	n/a	100%	0%
Harris 10'	100% (**)	100% (**)	7%	100%	0%
IVC	n/a	0% (**)	n/a	0%	100%
Janeil	33%	25%	10%	40%	60%
Kaultronics 9'	n/a	0% (**)	n/a	0%	100%
Laux	100% (**)	n/a	n/a	100%	0%
Luly	n/a	100% (**)	n/a	100%	0%
Microdyne/AFC	100% (**)	100% (**)	n/a	100%	0%
Miralite	n/a	100% (**)	n/a	100%	0%
ODOM	100% (**)	50% (**)	n/a	67%	33%
Paraclipse	100%	100%	10%	100%	0%
Prodelin (****)	n/a	100%	6%	100%	0%
StratoVision	n/a	0% (**)	n/a	0%	100%
Triangle Engineer	n/a	0% (**)	n/a	0%	100%
USS	n/a	0% (**)	n/a	0%	100%
Vidare	0%	0%	6%	0%	100%
Western	0% (**)	0% (**)	n/a	0%	100%
Winegard	100% (**)	0% (**)	n/a	50%	50%

Notations:*

- / Percentage in this column indicates percentage of those reporting/voting mentioning this antenna or brand. Loosely, it might be considered a 'share of market' report although it would not translate directly to share-of-total market since we are dealing with 'pluses' and 'minuses' of designs without regard to volume. Those marked n/a did not register the minimum number of 'mentions' (4.5% of total or more) to qualify in the category.
- / Percentage in this column tells you how distributors, or dealers, generally rated product(s); distributors for warranty replacement, dealers for quality of product and performance. A double asterisk (**) indicates that in CSD's judgement too few survey participants mentioned this product for the percentages given to be a meaningful indication of national trends (i.e. those with a double asterisk fell below the 4.5% minimum to qualify for a 'share of market' [third column from left] listing).
- *** / Specific antenna not mentioned; supplier sells several models.
- **** / Prodelin antennas are sold under several brand names other than 'Prodelin' or M/A Com. Survey respondents did not always clarify exact labeler of antenna.

THE LNAS

The low noise amplifier portion of the system seems to have reached a performance plateau where virtually any 100 degree unit is as good as virtually any other 100 degree unit. Or so they say!

The facts are that given today's improved receivers (some, but not all!), and hotter satellite footprints, those small but measureable differences we used to be able to find between supposedly identical LNAs have all but disappeared. At the same time, the large differences between LNAs of different brands, claiming the same noise figure ratings, have also all but disappeared.

So what makes an LNA desirable, and not so desirable, anymore? Our respondents tell us it is the service one gets from a particular brand. This will become increasingly clear when you check the 'soap box' portion of the LNA story.

The first thing that jumps out at you from the LNA Survey Results Table is the dominant position of Avantek and Amplica in the LNA market. Let us talk about this, and caution those who might like to make concrete assumptions from what they see here.

A quick study of the LNA table might suggest that between Avantek and Amplica we have 60% (38+21) of the LNA market repre-

sented. This could be true, but remember that we did not set out to design a study to measure 'market share,' so any assumptions one might make from our "% Mention" column (under 'Composite Ratings') are just that; assumptions. We'd hate to see people start 'quoting' CSD with loose interpretations along the lines of "Avantek outsells Amplica nearly two to one," or, "Avantek sells nearly 40% of the LNAs in this market.

If you have an abiding interest in LNAs, have jumped here to see how LNAs did, and don't understand what the LNA table means, stop right now and go back and read the full-table-explanation covered under 'TVRO Antennas'; page 10. It will tell you that with the distributors mentioning LNAs, Avantek was a 'favorable product' in the area of product warranty and repair with 92% of the distributors. It will also tell you that Amplica LNAs were 'favorable' with 75% of the distributors.

The 'shocker' comes in the next column to the right. At the dealer level, where dealers were instructed to rate only field performance, we find Avantek dropping to a 83% rating, and Amplica dropping to a 0% rating. This begs a detailed explanation.

SURVEY CONTINUES / page 14

It was only natural...



... that Superwinch, innovator in electric winch technology since 1968 and the manufacturer of more electric winches than anyone else in the world, should introduce Skywalker, $^{\text{TM}}$ an exciting new breakthrough in TVRO antenna actuator drive systems.

Superwinch standards always have been high . . . in product design, product reliability and support, and in commitment to product availability. Their standards are reflected by the customer company they keep - Sears & Roebuck, J. C. Penney, Montgomery Ward, Western Auto, Canadian Tire, W. W. Grainger . . . the list goes on. Over 525,000 products bearing our name are in service world-wide.

Superwinch offers this same high quality standard in the Skywalker remote TVRO dish control system.





by Superwinch

For further information, please fill out and mail coupon to:

Superwinch, Inc., Putnam, CT 06260 USA or call (203) 928-7787. Telex 643981 SWINCH PUTM

Please send me more information on your SkywalkerTM system.

Name:

Street:

City:

State:

Zip Code:

102



Videophile Satellite Television

The possibilities of component audio come to satellite video.

Component equipment has become popular in the audio field for a lot of reasons. One reason is that the component philosophy allows a purist to upgrade any piece of a system as technology advances without having to replace the entire system at once. This basic idea has ushered in an era of specialty firms dedicated to advancing the art of a single link in the chain. They succeed because all of their efforts are focused on one discipline, not thinly spread over an entire system. EARTH TERMINALS™ brings this philosophy to satellite television. We concentrate on the single most important, most difficult element-the microwave receiver. No other part of the system has such a dramatic effect on picture quality.

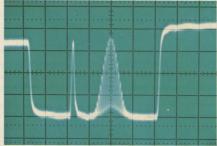
Quality You Can See

An EARTH TERMINALS receiver provides cleaner pictures with less granularity. Truer colors that don't smear. Less sparkling snow on weak programs. Complete absence of herringbones and waves. Superimposed lettering that doesn't tear at the edges. In fact, you haven't seen video this exciting unless you've been in a television studio. If you own a quality video projector, you'll be even more impressed.

Quality You Can Measure

Broadcast engineers are impressed with the accuracy of EARTH TERMINALS receivers too. Our VITS Sin² Pulse and video SNR test results are incom-

parable; actually the equal of most commercial grade receivers. We can also handle tough signals like Reuters data transmissions that give other receivers fits. It's no wonder then, that after exhaustive testing, some cable companies and television stations use EARTH TERMINALS receivers as their main source of satellite program material. They know value when they see it.



Unretouched Off-The-Air Sin² Pulse Test

It's Easy To Live With

All this technical sophistication is really quite easy to get along with. Precise automatic fine tuning tunes every channel the same way every time. You don't have to be an expert to get perfect

pictures. EARTH TERMINALS receivers come with a remote control that selects channels individually, adjusts audio volume at your convenience, and automatically signals the rest of your system to supply the proper antenna polarization through an even/odd channel switch. And it fits in the palm of your hand.

Tips On Value

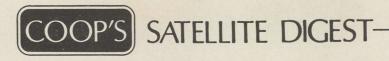
There are plenty of satellite receivers that cost less than ours, but nearly all of them need bigger antennas and more exotic Low Noise Amplifiers for a picture free of sparkling snow. If you're on a budget, you can save money in other parts of the system by paying more for our receiver and come out even. You get high fidelity video in the bargain. If you're simply after the best picture money can buy, we can make it very affordable. Either way, give us a call or write us for the details.

EARTH TERMINALS Department 103 One Microwave Plaza Cincinnati, Ohio 45242 513-489-6200



EARTH TERMINALS

PAGE 14/CSD/6-83



SURVEY / continued from page 11

We found this so difficult to accept that we plowed back through the survey forms on three different occasions looking first to verify what the numbers said, and then to figure out why it came out this way. Here are our findings:

The dealers did not follow the instructions here. Many dealers, as the soapbox will suggest in our representative **sampling** of soapbox comments selected, have had some experiences with getting Amplica LNAs repaired. The dealers were **supposed** to be commenting on LNA **performance** only. They stepped 'over the line' and allowed their emotions to get them into the 'repair cycle/warranty' area. Some quantity of dealers have experienced delays and/or cost problems in getting LNAs repaired. Many of those with such problems have had that experience **with Amplica.** Faced with this 'problem,' they have chosen to neglect the original question (field **performance**) and concentrate instead on the warranty and repair cycle. That explains part of this unusual result. But there is another explanation.

When we checked the percentage of those filling in the 'LNA Line' on either the distributor **or** dealer form, against the total number of forms returned, we found that less than 35% (33% plus a fraction to be exact) even completed the LNA line. Several penned in comments on the line which said (in effect) "They are all about the same," or, "One is as good as another." That told us that what we have here, especially in the dealer category, are those who (1) do **not** feel that all LNAs are created about equal, and, (2) those who have some pent up ill feelings about the repair cycle; they were using the form as a way of relieving their 'hostility.' Once we understood what was happening here, we felt better about the survey. Not because we were necessarily bothered by such a one-sided, negative tabulation, but

rather becase the survey had helped us identify a problem that we had not heard **openly** discussed previously.

After the Avantek/Amplica entries on the survey table, the rest are all 'also rans.' None achieved the minimum percentage of mentions required (17% of total respondents, in this category) to realize a 'Share of Mention' (%) rating. Remember, however, that only slightly more than one third of the total number of firms returning the forms even completed the LNA line category. Perhaps, Amplica repairs aside, all LNAs are pretty much equal these days! When interest is so low that you can't get people to complete a survey question line on a form, you have some indication of the relative importance of the 'question' in industry minds.

LNA Soapbox: "The least amount of problems, with LNAs; Cal Amp, Amplica, Avantek working well" (Pa). "Amplica wanted \$125 to replace 'N' connector (broken female pins), out of warranty. We settled for \$50 after discussion. Return time approximately five weeks!" (Ks). "Had two Amplica LNA failures this winter; one was sent through distributor (McCullough, Ark,) and it took seven weeks to get back. The other involved direct contact with Amplica and still took four weeks. This is outrageous as I cannot afford to keep numerous spares to maintain customer satisfaction while the factory takes their time with repairs" (Ak). "Repair time for LNAs has been extremely slow. Six weeks for Amplica and three months for Avantek (they repaired my unit and then returned it to somebody else!). The LNA suppliers are not handling their warranty period properly either; by starting the warranty the day they ship the unit, we are forced to not stock as many spare LNAs as we might otherwise stock. The warranty should begin the day the unit is installed; that would encourage me to keep more in stock" (Mo).

LNA SURVEY RESULTS/ Survey respondents were asked to rate LNA OEMs for prompt warranty/guarantee repair, replacement (distributors); for Top Performance (installing dealers).

LNA OEM	Distributor Rating	Dealer Rating	% Mention (*)	omposite Rating	s % Negative
Avantek	92%	83%	38%	89%	11%
Amplica	75%	00%	21%	30%	70%
Birdview (LNA-C Unit)	100% (**)	n/a	n/a	100%	00%
California Amplifier	100% (**)	100% (**)	n/a	100%	00%
Dexcel	100% (**)	100% (**)	n/a	100%	00%
Drake	100% (**)	100% (**)	n/a	100%	00%
Locom	66% (**)	50% (**)	n/a	80%	20%
M/A Com	100% (**)	100% (**)	n/a	100%	00%

Notations:* / Percentage in this column indicates percentage of those reporting/voting mentioning this LNA brand. There is likely to be a **rough** comparison between the ratings here and the 'share of market' for the respective LNA suppliers, although since the survey was not volume conscious there can be no hard deductions from this column as to 'share of market.' Those with a n/a did not have sufficient mentions to qualify for our minimum level to register a true 'share of mention' (17% in this instance).

** / Percentage in this column tells you how distributors rated product for warranty repair, or in second column how dealers rate product for performance. Those with a double asterisk (**) had insufficient 'mentions' to meet our minimum qualification standards. We believe those so marked to be significant indicators of **trends**, but **not** concrete **ratings**.

THE Receivers

There are twenty-five receivers mentioned by brand in our survey. This was not the total number reported; those with fewer than 2.5% 'mentions' were left off the survey becaue their numbers were judged insignificant.

Like the antenna and LNA tables, this table reflects the distributor rating in the first column (i.e. how distributors rate a brand for warranty and repair), the dealer rating in the second column (i.e. how dealers rate the product for field performance), and then the three composite rating columns. Our minimum-response cut-off for a "% Mention" was 4.3%. All of those with the double asterisk (**) fell between the 2.5% minimum cut-off and the 4.3% minimum rating region.

An expanded contribution from a dealer in New Mexico illustrates the type of problems being experienced with receivers these days.

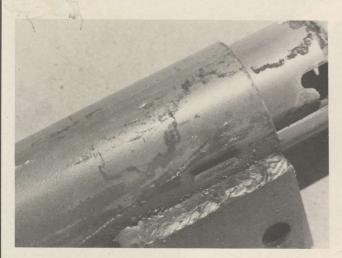
"On March 29, 1983 we ordered 3 low-cost systems from National Microtech. The systems consisted of a 7.5 foot Hawkeye fiberglass dish, a Drake 120 LNA and a Sat-Tec 2000 receiver. The

shipment was received on April 8th. We examined it and found one of the three antennas had minor cracks on the surface. The bill of lading indicated the antennas were to have been crated; they were not. We filed a complaint with the freight carrier.

"The mounts came in poor condition; rust and bare metal. There was no packing list, so we were not sure what we were even looking for to complete the shipment!"

"We notified National Microtech the same day. We were told that if the antennas had been damaged because of the shipper, the problem was up to the shipper to resolve. If, on the other hand, it turned out not to be the shipper's fault, we could return the antenna(s) at our shipping expense. National would replace them. And the mounts? "What do you expect for the price you paid???". It was suggested that we repaint them.

"Since this was the first such low-cost package for us (we have considerable experience with larger systems) we decided to get it up and running. Ooops. No instructions. Their answer was simple



RUSTY MOUNT? "Paint it yourself; what did you expect at that price?".

enough. 'No.' We wondered why. 'The manufacturer does not provide us with any instructions, so we don't provide any either.' So we dug into our past experience and put the antenna together. Now, the mast that holds the LNA sits off of center. It can only be used with a Polarotor I or II, as it comes. No, neither a Polarotor I nor II are included in this package!

"The receiver, on the other hand, is equipped with a two position switch to interface with a polarizer. The polarizer, however, cannot be adapted to the antenna due to the design of the mast. And then, how do you interface the Polarotor with the Sat-Tec 2000?

Back to the telephone. The technicians at National Microtech did not know; 'nobody has ever asked us that question before.' That's when I pointed out that it was strange, indeed, that nobody had asked that question since it was obvious that the question had to be asked to get the system together. And I wondered to myself whether they had really been selling the hundreds of these systems they claimed. They finally suggested I drill a new hole in the receiver box and install a new switch, or make up a separate switch box.

"That's when I thought to myself 'If I had paid a little more and bought the Sat-Tec 5000 receiver, rather than the 2000, I would not have this problem. The 5000 has an even-odd switch plus the convenience of secondary audio tuning.' That's when I called Sat-Tec.

Their answer was polite but firm. They manufacture receivers, not polarotors. They suggested I call Chaparral. So next I called Chaparral. They had an answer similar to Sat-Tec. They manufactured polarotors, not receivers. And besides, they didn't have anyone around that knew how the Sat-Tec 2000 receiver was wired up. In desperation I called National back again. They promised to get me an answer the

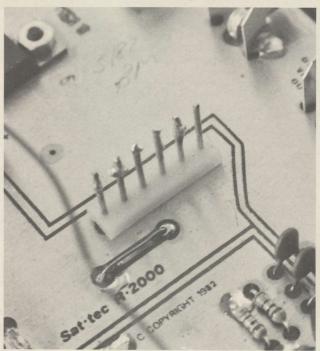
"Sure enough they called back. Their solution, however, bothered me since it involved using a two position switch and the Polarotor requires a three position switch so the probe can move back and forth. Skeptical though I was, I did it their way.

You guessed it. The probe moved one way, and stopped. But it would not return. This means that if you want to tune in a picture you have to either guess the exact place to stop, or, go through too far, stop, and then go back through the whole opposite polarization and then back again. Hoping that the second time through you will stop it at the right place.

"But the real surprises were still ahead. When I opened up the receiver, following National's instructions for hooking up the interface between the Polarotor and the receiver, I discovered something less than a brand, new, shiny circuit board. There were scratches on the boards, and solder where the board had been reworked. One of the three had paint missing from the cabinet and heavy scratches.

"I called National and asked them for permission to return the

three receivers. I wanted to 'upgrade' to a receiver that would interface with the polar rotor system. 'You cannot return them anymore; they have been out of the box and they are not new anymore' he responded. I then pointed out that two of the three were not new to begin with. That got me transferred to someone higher up at National. I re-explained the problem, including why I wanted to get receivers that would interface with the polarizaton system. When I suggested that two of the three receivers did not 'look' new, I was told that I was a liar. His explanation, after that bit of flattery, was that 'perhaps the receivers had been returned from the field, to the National bench, for some warranty work.' I responded that if that was the case, I didn't consider the receivers new anymore. And his response was that 'They are new; we started the one year warranty new when we shipped you the units.



R-2000 RECEIVER sold and shipped as 'new' late in March of 1983 bears '5/82; BM' signature on the circuit board. That's 10 to 11 months of being someplace (new!).

"As you might guess, the situation deteriorated from that point. I was told that I couldn't return the receivers for any reason, now. And, that I was an isolated case and a 'pest.'

'So here I sit. I have three 'low-cost systems' that includes one damaged antenna, three rusty mounts, and two used receivers. The comment I heard that really says it all is 'What do you expect for the price?'. Certainly not integrity." (Luis Lucero, New Mexico Satellite Receiving Equipment, Santa Fe, NM).

For some time it has been clear that at least a couple of the receiver suppliers are 'running away' with the bulk of the receiver marketplace. One in particular, the RL Drake company, has been making significant inroads for receiver volume during the past year.

There is some indication of the relative success of Drake, and others, in the Receiver Survey Table results shown here. Again, this caution. The middle column ("% Mention") cannot be taken literally as a 'share of market' number. But, for a firm to show up high on this rating does indicate that there is a considerable volume of product being shipped. Drake comes in at 18%. That means they were mentioned, either good or bad, by 18% of those responding. Distributors gave Drake a 67% rating for warranty repairs and replacements. Dealers gave Drake an 89% rating for performance of the product in the field. Those are good numbers.

Another high-rater is Earth Terminals/Washburn. As the soap-

SURVEY CONTINUES / page 18



Channel Master ...









IT'S EASIER FOR YOU TO SELL TO PEOPLE THAT KNOW US.

They're the people in suburban and rural markets that already depend on Channel Master high-gain TV antennas and amplifiers for the best reception that they can get. When you offer Channel Master earth stations to your prospects, the chances are very good that they've heard of us and our reputation for high-quality reception.

They're the people in over 8 million American homes with a Channel Master antenna rotor control box in their living room. They're some of the users of the 21 million Channel Master outdoor TV antennas sold over the last 34 years. Some of our competitor's names may be well known to us in the satellite "trade" but to the average consumer they mean absolutely nothing.

Over the past 34 years, the Channel Master name has become synonymous with superior TV reception, recognized again and again by leading consumer testing magazines. You clearly benefit from this reputation, as well as by having a single, brand-recognized name to sell...not separate names for the dish, receiver, LNA, polarizer, dish controller and stereo processor. And not separate guarantees or service centers, either.

Check it out. And let our Distributors show you satellite TV the way it's supposed to be. They're ready with inventory and technical assistance to make your life easier in this hectic new industry.

Channel Master....dedicated to better reception since 1949.



CHANNEL MASTER

SATELLITE RECEPTION EQUIPMENT

DIVISION OF AVNET, INC., ELLENVILLE, N.Y. 12428



We need new dealers and distributors for selected markets who can specialize in this new and growing industry. Please write or call Don Berg or Phyllis Fisher for immediate consideration. (914) 647-5000.



PAGE 18/CSD/6-83



SATELLITE DIGEST

SURVEY / continued from page 15

box comments indicate, Clyde's record is about as close to perfect as you can get. He grabbed an 11% mention, and 100% with both distributors and dealers. **Gillaspie** was another one that rated high. Although Norman's firm barely made the cut-off, with a 5% share (we cut off at 4.3%), he got 100% support at both the distributor and dealer level. And **AVCOM**, also with a 5% share, rated 100% with distributors and averaged out 80% favorable and 20% unfavorable in the composites. Once again, there are a substantial number of receivers that came in above the 2.5% cut-off point, but below the 4.3% of mentions necessary to qualify for a "% Mention" rating.

Receiver Soapbox: "When we got our first Luxor receiver, it had no manual. Boy, were we confused!" (Mo.) "McCullough receivers always had good sensitivity but their video quality left something to be desired. Audio reproduction in those receivers with slug tuned forms is not good; after you have a chance to work with audio circuitry like found in the AVCOM COM-2, it ruins you for anything else. Receiver companies seem to be in such a rush to get NEW product to the market that they are

forced to make production line changes to try to get the bugs out." (Ak) "An Earth Terminal receiver was damaged when lightning struck a power company transformer and entered the TVRO owner's home. The factory repaired the receiver and returned it to us promptly, at no cost." (Tx) "I had a problem with an Earth Terminals receiver in 1981; Clyde Washburn handled it like it was one of his children. I really appreciated the extra service" (Ak). "Drake promptly returns the few warranties returned for repair" (Tx). "The Drake is the best for the price; but nothing works as good as an Earth Terminal receiver!" (Tn). "We would like to see a really good ANIK audio filter" (Ma). "Gillaspie checked my receiver and down converter without charge and found a bad solder joint. I appreciated that" (Md). "Drake has a very good technical staff and an excellent service book" (Ga). "Drake technicians try to help you over the telephone with trouble shooting before you are forced to send it in for repair" (Tn). "An early Luxor receiver worked horribly; poor video drifting, and it came with no printed information at all. The distributor turned a deaf ear inspite of numerous long distance telephone calls" (NY).

TVRO RECEIVERS — SURVEY RESULTS/ Survey respondents were asked to rate TVRO receiver OEM's for prompt warranty/guarantee repair, replacement (distributors); for Top Performance (installing dealers).

Receiver OEM	Distributor Rating	Dealer Rating	C	omposite Rating	S
			% Mention (*)	% Positive	% Negative
Amplica	n/a	50%	n/a	50%	50%
Automation Techniques	80%	20%	11%	50%	50%
AVCOM	100%	67%	5%	80%	20%
Birdview	n/a	100% (**)	n/a	100%	00%
Cook	00% (**)	n/a	n/a	00%	100%
Dexcel	100% (**)	100% (**)	n/a	100%	00%
(RL) Drake Co.	67%	89%	18%	77%	23%
DX (C. Itoh)	n/a	100% (**)	n/a	100%	00%
Earth Terminals (Washburn)	100%	100%	11%	100%	00%
Equinox	n/a	00% (**)	n/a	00%	100%
General Instrument	n/a	100% (**)	n/a	100%	00%
Gillaspie	100%	100%	5%	100%	00%
Harris Corp.	n/a	100% (**)	n/a	100%	00%
Infra-Tek	n/a	100% (**)	n/a	100%	00%
Intersat	n/a	100% (**)	n/a	100%	00%
KLM	50%	29%	10%	33%	67%
Luxor	00%	50%	7%	43%	57%
McCullough	n/a	00% (**)	n/a	00%	100%
Microdyne	n/a	100% (**)	n/a	100%	00%
Norsat	00% (**)	n/a	n/a	00%	100%
Pinzone	100% (**)	n/a	n/a	100%	00%
Rohner	n/a	00% (**)	n/a	00%	100%
Sat-Tec	50%	00%	5%	25%	75%
Scientific Atlanta	n/a	100% (**)	n/a	100%	00%
TeleCom Industries	00% (**)	00% (**)	n/a	00%	100%

Notations:* / Percentage in this column indicates percentage of those reporting/voting mentioning this receiver brand. There is likely to be a **rough** alignment between the percentages shown here and the relative share of market for **many** of the suppliers noted. Those with no percentage appearing were mentioned too infrequently to qualify for our 'cut-off' (4.3% of all comments in this category).

** / Percentage in this column tells you how distributors voting rated product for warranty repair (first column), or field performance (second column). Those with a double asterisk (**) had insufficient 'mentions' for us to believe there was a clear 'pattern' emerging from those 'votes cast' and while a trend may be indicated, no final tallies are possible.

THE Motor Drives

By our own personal experience over the years, motor drives still leave quite abit to be desired. The problem is two-fold. The outdoor portion, or the drive system, is one of those 'it sure looks easy' projects. Screw jacks are commonly available. Motors to drive the jacks are commonly available. So what is the big deal with getting the switch that controls that motor inside? Looks are deceiving. As Richard Shogren wrote in our December 1982 issue ("Driving Polar Mounts," page 43) "... a significant number of (antenna) manufacturers simply do not build an efficient polar mount." Angles on

torque arms, 'dead loads' when the dish reaches the far western extreme, combine to make retrofitting of the drive assembly difficult. Even impossible. Only a handful of the suppliers are responsible **in-house** for **the** dish, **the** drive, **the** mount and **the** controller. Most drives sold and installed are retrofitted by the dealer to his own antennas. This takes the drive manufacturer out of the 'loop,' and he has no real way of knowing what torque and load and 'angular' demands are going to be placed on his drive in the field.

Some try to engineer around this problem by making everything heavier than it need be; provided the system had been designed as an

integrated system. If the drive supplier/designer cannot be sure what angles will be used, what stresses there may be at the extremes, or how unbalanced the dish assembly may be at an extreme end of motion, he has to assume the worst, and design for it. The result is that you may be paying for a drive that would move a house straight up, but by your own installation plan, have difficulty lifting a pigeon at a straight-out angle.

If the drive designer faces a difficult task, the controller designer faces an impossible task. He has to ask you to interface the controller signaling device with a drive he has not seen and a dish he has not seen, in a location which he cannot envision. He has to tell you how short, or how long, the control cables can be, or must be, and he has to be sure you understand that improper powering or wire size selection will destroy or dis-arm the unit.

On top of this, he has to be married to a drive mechanism that he may not be familiar with, and he has to be able to tell that drive mechanism to stop with 1/16th rotation accuracy at 10 or 11 spots in the sky; everytime it moves. No simple trick.

Touch tone operated, microprocessor aided controllers seem like a very nifty way to go. And sooner or later the industry will figure out how to do it, reliably, every time, at a reasonable price. For now, there are more negatives associated with motor drive and control systems than there are positives. At least that is what our survey results show.

The most frequently mentioned drive supplier, ADEC, did miserably in the ratings. Not one of those completing the survey rated them satisfactory. As an aside, of the 14 controllers and drives we presently have operating in the Turks and Caicos, only two have lasted and continue to run in their original pristine state after 30 days or more of use. One of those units is from ADEC. Most of the other 12 failed, either the drive portion, or the controller portion, within a few weeks. Some did not last a full day. And the ADEC unit we obtained, on our own for test, did not come from the factory directly; it came through a distributor. So there's no chance we got a 'special unit' in the process.

Like the LNAs, but for a different reason, we found a number of

firms completing the forms but leaving the motor drive information incomplete. A few wrote in such terse comments as "None of them work worth a darn", or "I quit selling all of them two months ago". Wo our percentage of responses for motor drives was lower by quite a bit than say antennas, or receivers. Dealers and distributors alike seem to be reluctant to believe much of what the motor drive folks are

Houston Satellite Systems was the top 'positive response' performer; mentioned in 11% of those completing this question. All of those mentioning the firm were high on the product. Right behind Houston was TDF, also with a 100% positive response and a "10% share" or mention.

Motor Drive Soapbox: "The local Channel Master Distributor replaced a burned out motor drive unit the same day it failed" (NY). "A big problem we have encountered is the mechanical pieces not holding firm on the satellites; cheap trailer parts not designed for 'use' and 'stress'. We have welds breaking even before the rust can start!" (Tn). "We sent an MCM jack to the factory three times and were finally told that it had a design defect and could not be replaced until I sent them more money to upgrade to a newer model" (Ga). "Every ADEC has failed at least once and some have not returned from the factory, after months of waiting. The one Starfinder purchased never worked, nor did the three replacements. No refund was given" (Tx). "A USS antenna and mount purchased in November of 1981 would not come down low enough to hit F1. When we told them we had two of their antennas that would not make 16 degrees look angle, they told us to 'wait for F3R!' Their motor actuator used a plastic screw jack, and they blamed the sensor manufacturer for several bad sensors which they sent to us" (Va). "The 11 year battery (their claim) in the early model Starfinders would go dead in sixty days" (la).

TVRO ANTENNA MOTOR DRIVES / Survey respondents were asked to rate TVRO motor drives for prompt warranty/repair, replacement (distributors); for Top Performance (installing dealers).

Drive OEM	Distributor Rating	Dealer Rating	Composite Ratings		
			% Mention (*)	% Positive	% Negative
ADEC	00%	00%	22%	00%	100%
Burr (Screw Drives)	00%	00%	8%	00%	100%
Channel Master	100% (**)	100% (**)	n/a	100%	00%
ComTech	n/a	100% (**)	n/a	100%	00%
Home Cable (HCI)	100% (**)	100% (**)	n/a	100%	00%
Lawhorn/WorldSat	n/a	100% (**)	n/a	100%	00%
Houston Satellite Systems	n/a	100%	11%	100%	00%
MCM	00% (**)	n/a	n/a	00%	100%
MTI	n/a	100% (**)	n/a	100%	00%
Starfinder	00% (**)	100% (**)	n/a	50%	50%
TDF	100%	100%	10%	100%	00%
Tel-VI	n/a	100% (**)	n/a	100%	00%
Tracor	100% (**)	n/a	n/a	100%	00%
USS	n/a	00% (**)	n/a	00%	100%
Vector (100)	n/a	100% (**)	n/a	100%	00%
Winegard	100% (**)	n/a	n/a	100%	00%

Notations:* / Percentage in this column indicates percentage of those reporting/voting mentioning this motor drive brand. Those with an n/a (no percentage appearing) failed to qualify with a minimum number of votes/reports cast (7% in this category)

** / Percentage in this column tells you how distributors rated product for warranty repair or replacement (first column), or field use (by dealers, second column). Those with a double asterisk (**) had some votes or comments, but too few mentions (in less than 7% of the total comments in this category) for us to believe the percentage trends shown are indicative of true national results.

THE Manuals

We have been suggesting for several months that manuals, or a lack thereof, are an almost universal industry problem. Our 'harping' on this point is not without sound reasoning

Some surveys suggest that seven out of every ten (new) dealers in TVRO fail. Many of these failures can be traced to the inability of the

new dealer to obtain adequate training for his newly chosed field of endevor. During 1979, 80 and most of 81, a dealer would attend an industry 'seminar' or 'show' as much to learn how to do things as he would to see equipment. With the show strategy changing, and with

YOU CAN'T BUY MORE FOR LESS PERIOD.



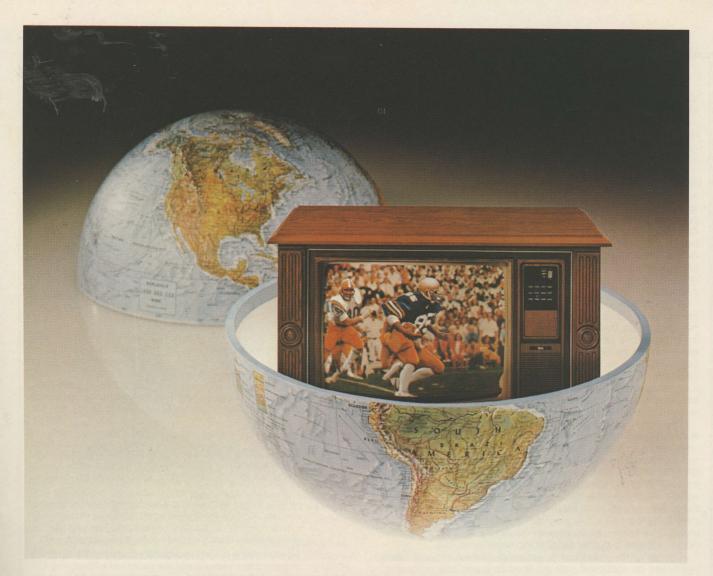
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AV is the largest consumer electronics distributor of its kind in the nation. We offer the finest selection and best prices in satellite TV systems, audio and video components, televisions, car stereos, portables, telephones and computers.

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SYSTEM 7 OPENS IT UP.

Lowrance helps open up the satellite market with an exciting new pair of satellite receivers.

The System 7^{XL} is the new inexpensive Lowrance receiver with excellent performance and reliability. Features include detent tuning. Signal strength meter. Built-in modulator. 125 ft. of cable. Weatherproof downconverter. Fixed and variable audio. And more.

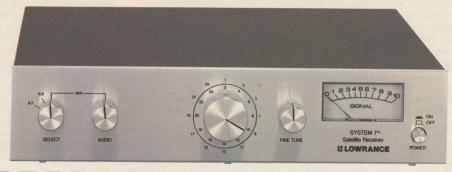
The System 7^{AR} combines all the above, plus adds stereo decoding and a remote control as standard.

Lowrance also gives you the selling tools to keep the market open. With

dealer support that includes merchandising aids like color posters. Consumer TVRO question and answer brochures. Product brochures. Plus a video tape. All specifically designed to help you sell more earth stations.

When it comes to satellite receivers, demand the brand that helps increase sales . . . Lowrance.

LECTRONICS, INC.



Yes! I want to know more about the Lowrance System 7 Receiver. Send me more information today.

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PAGE 22/CSD/6-83



virtually no training forum remaining, the dealers find themselves left BEST vs WORST MANUAL / Survey respondents (installing dealers to figure out how to put a terminal together on their own.

There are many manuals out which seek to help the dealer, but most of those are now sadly out of date, and modern equipment configurations (LNCs for example) are not even mentioned in manuals created one or two years ago.

And so it falls on the shoulders of the equipment supplier to provide adequate instructions for his equipment to guide the dealer through the installation. A few of the suppliers recognize this fact, and have approached the manual not as a necessary evil, but rather as a good, potent selling tool. Much of the selling success of (RL) Drake, or Channel Master can be attributed to the care and skill which has gone into their dealer installation manuals. A recently released manual from Boman Industries is another excellent example of skillful use of the printed word, with diagrams and tables, spelling out just what the dealer needs to do, in step by step fashion, to make a successful installation.

It has been suggested that a new dealer, entering the industry for the first time, insist on an opportunity to read and study the installation manual provided by the supplier or system packager BEFORE placing an order for anything. If the novice dealer finds he can read, and comprehend, the manual provided, the chances are quite good he can then take the equipment and make it work in the field. If there is no manual, that should be an instant early warning sign. If the 'manual' is a single sheet of paper that explains the product only in terms that an advanced satellite-technologist would understand, that is another reason to avoid the product.

One of the most recent attempts to make the installation procedure more easily understood uses videotape technology. Dexcel recently completed a 55 minute step by step terminal installation tape which was produced by, and is being distributed by the people at Sat-Scene (801-561-0931). CSD has reviewed the tape and must commend the folks at Dexcel and Sat-Scene for a clear, concise set of instructions which even the neophyte installer should be able to follow, and understand. There have been other attempts at videotaping installation procedures in the past; this one stands out because of the relatively professional production techniques utilized by Sat-Scene producer George Mitchell in putting the tape together.

The well done instruction or assembly manual is, sadly, often overlooked or postponed until the product is well into production. Luxor, for example, in introducing their elaborate new receiver package at the 1982 Atlanta show made positive, deep impressions on many potential distributors and dealers who felt they would like to handle the product. But, as the first units were shipped, and received by dealers, these dealers found to their dismay that there were either no instructions included, or extremely inadequate instructions. One dealer wrote that he spent an entire weekend trying to figure out how to get the receiver off of the channel it popped up on when turned on! At the end of the weekend he boxed the unit back up, so frustrated that he would now not consider the unit for sale no matter how well it worked. Luxor took care of that, after a relatively short time, and today their present manual receives relatively high review marks from the dealers who sell the receiver. But the dealers who received an early receiver, without a manual, in many cases are 'turned off' by the product. Even if they eventually give it another try, Luxor will have lost

only) were asked to rate the technical / installation manuals which they are provided with equipment.

Firm/Supplier	Rated Best	Rated Worst	Overall Rating(*)
Anderson Scientific	100% (**)	00%	n/a
Automation Tech.	50%	50%	0 (even)
Arunta Stereo	00%	100%	02
(New) Birdview	100% (**)	00% (**)	n/a
Channel Master	100%	00%	+.05
ComTech	100% (**)	00% (**)	n/a
Danex	100% (**)	00% (**)	n/a
(RL) Drake Co.	100%	00% (**)	+.17
Eclipse	100% (**)	00% (**)	n/a
General Instrument	100% (**)	00% (**)	n/a
Harris	100% (**)	00% (**)	n/a
Intersat	100% (**)	00% (**)	n/a
Janeil	00%	100%	07
Kaultronics	00% (**)	100% (**)	n/a
KLM	00% (**)	100% (**)	n/a
Longs (Cryson)	00% (**)	100% (**)	n/a
Luxor	42%	58%	02 (***)
Microdyne	100% (**)	00% (**)	n/a
Paraclipse	00% (**)	100% (**)	n/a
Paracom	100% (**)	00% (**)	n/a
Seavey	00% (**)	100% (**)	n/a
South River	00% (**)	100% (**)	n/a
TDF	00% (**)	100% (**)	n/a

Notations:* / Overall rating is found by taking total number of plus votes, subtracting total number of negative votes for manufacturer, and dividing by total number of votes cast.

> / While those with double asterisk received some 'votes,' the total number of votes cast was not substantial enough to establish a trend and high and low percentages shown should not be taken literally.

*** / Several voting made the distinction between the 'first' or early Luxor 'manual' and the current one, noting that the eary manual was inadequate, and giving the current one high marks. We make the assumption that many of those rating the Luxor manual 'worst' were perhaps judging only the earlier version.

the selling time created by the interval between the initial 'unpleasant first impression' and the time that the dealer reconsiders his decision not to handle the receiver.

Columns one and two should equal 100%. In column three, we have taken on a vote by vote basis all of the positive votes and then we have subtracted all of the negative votes. The resulting number was then divided by the total number of votes cast. A brand had to achieve 5% mention to appear in the third, 'Overall Rating', column. Most did not, telling us that individual dealers

Manufacturers	and Products We Rate HIGH for Prompt Warranty/Guarantee Repair, Replacement:
Antennas: LNAs: Receivers: Motor Drives: Other:	HARRS - PARACLIPSE (NATIONALLY) (NO MASOR PROBLEMS LOCALLY). NO PRISLEMS WITH ADMITEK, AMPULA, DEXEL DRAKE - KIM NO PROBLEMS (4ET) WITH ECUPSE MODELS -
Manufacturers	and Products We Rate LOW for Prompt Warranty/Guarantee Repair, Replacement:
Antennas:	SOME LOCALLY MFG. FIREEGENSS SYSTEMS (MAINLY THE MOUNTS)
Receivers:	AUTUMATION TECHNIQUES (ONE OCASSION ONLY)

are largely familiar only with the manuals of the products they now carry or have carried in the past. We don't seem to be an industry of 'Manual Scholars' or collectors. Perhaps that will change.

Manual Soapbox: "We desperately need better instructions. For example, what about the various ways an LNA or LNC can be mounted? Not every system is a 'simple system', yet most of the instructions, if they exist at all, treat us all like we are doing only the very basic, simple stuff" (ND). "Inspite of excellent CSD coverage on the problems associated with carrying DC on the coax, and potential electrolysis, many manuals continue to treat this as if it were not a problem. It definitely is!" (Canada). "For anyone seriously considering dealing in TVROs, the FIRST thing they should do is subscribe to CSD. It certainly saved me a lot of pitfalls; thanks!" (Canada). Editor's note: You are welcome, we are sure! "The Drake service book is excellent" (AI). "When we got our first Luxor, we didn't have a manual. And neither did the importer!" (Mo).

The MOST vs The LEAST Helpful

The premise here was the distributors have the closest direct contact with the OEM's. Not all manufacturers maintain a regular incoming telephone line which dealers can utilize to work out problems or suspected problems with equipment and installations. Distributors on the other hand command a reasonable buying power and they usually have more of a 'direct line' into the inner sanctums of the OEMs.

What we found, with this portion of the industry wide survey, was that seven of the 24 firms mentioned were not OEMs at all. They were distributors of one sort or another. Since ostensibly only those who act as distributors themselves were supposed to be filling out this portion of the survey, we must assume that they were simply looking upon any source to them as an 'OEM' regardless of whether that source actually manufactured anything or not. JV Electronics, for example, discussed in this month's Coop's Comments, attracted a fair amount of interest in this portion of the survey.

There is certainly such a thing as being 'too helpful'. When a new dealer has inadequate instructions to work with, little or no training in this field, and he has several huge crates of equipment staring him in the face, he is going to border on desperation getting sufficient assistance to make the system work. That's his money tied up in those crates, and if he is going to survive, he is going to have to get his money out of those crates and back into his bank account.

Given those circumstances, it is not difficult to understand how a dealer will go from 'pillar to post' seeking advice on an installation, or looking for an answer to some facet of the installation he simply does not understand. Many of the OEMs tell us that they could spend all day, everyday, on the telephone hand guiding dealers through technical problems; a step at a time. "But", they add, "if we do this as often as we have the opportunity, in short order we wouldn't be an OEM anymore. Nothing would get out the door; all manufacturing would stop". Which of course brings us back to where we began; getting adequate, appropriately produced, instruction into the hands of the dealer so that he is comfortable enough with his installations to either do it totally unassisted, or at least understanding enough of the basics that when he gets himself into a spot, he can 'think' his way out again. None of this is a challenge to be taken lightly.

In the 'Most/Least' tabulation table found here, we have two simple columns. Readers were 'voting' by naming specific names. We elected to tabulate the results in this fashion.

- The name could come up two times; either in the 'Most Helpful' question, or in response to the 'Least Helpful' question. We tallied each 'vote' and then determined whether there were more 'Most Helpfuls' than there were 'Least Helpfuls'! If 'Most' won, we have a plus (+) shown. If there were more 'Least', we have a minus (-) showing.
- 2) Then we took the net number (either a positive or negative number) and divided that by the total number of responses to this category. That gave us a new number, which appears in the second and most right hand column. Bigger is better here.

And, once again, the (RL) Drake Company was the 'winner'; followed closely by Earth Terminals and then Echosphere (a distri-

MOST vs LEAST HELPFUL / Survey respondents (distributors only) were asked to rate the 'most helpful' and the 'least helpful' suppliers. Not all suppliers listed are OEM's; some are large or 'super distributors' who in turn sell to other distributors.

Firm/Supplier	Majority Plus (+) Or Minus (-)	Overall Rating(*)
ADM	+	n/a
Allsat	+	n/a
Automation Techniques	+	n/a
AVCOM	+	n/a
Boman		n/a
(RL) Drake Co.	+	+.08
Earth Terminals (Washburn)	+	+.06
Echosphere	+	+.01
Hoosier	+	n/a
International Video	-	n/a
Janeil		n/a
JV Electronics		06
KLM		n/a
Laux Communications	+	n/a
Lewis Electronics	+	n/a
Lindsay		n/a
Paradigm	+	n/a
Sales Inc.		03
Sat-Tec		n/a
Satellite TV Specialists	0 (even)	.00
Scientific Atlanta	+	n/a
TeleCom		n/a
Vidare		06
Waltons TV Service	+	n/a

Notatons:* / Overall rating is calculated by taking number of plus comments, subtracting number of minus comments and then dividing that number by total number of responses in category. 87 plus comments, less 21 negative comments = 's 66 comments; divided by 842 total comments results in an 'Overall rating' of .08, for example. Those with n/a listing were mentioned too few times for meaningful computations.

butor). Vidare and JV Electronics brought up the tail end. Those with an n/a listed did not have sufficient 'votes' to get them into an area of 'numerical safety'; i.e. too few votes to mean something definitive.

Most/Least Soapbox: "JV Electronics is the most helpful, and the fairest. Joe is a good man who doesn't lie or overcharge for his products" (Va). "JV Electronics is the least helpful supplier, but I have to admit they have been stung by some less than scrupulous OEMs" (Ak). "Hoosier Electronics, and Satellite TV Specialists have been the most helpful suppliers to us (Ks). "I would have to vote for Automation Techniques; after their technician tried to fix a GLR-550 a second time, and it still did not work properly, they sent me a new one" (Tn). "I am continuing to do business with suppliers I have had problems with simply because no better sources seem to be available" (NY). "The least helpful has been Norsat. The units shipped were not as described; pure basement construction qualty. And the price was higher than agreed on and the performance lousy. They refused to refund my money so now I have them in my 'satellite-junk-museum" (Canada).

WHAT Does The Industry Most Need?

Actually, the question asked (of installing dealers) was 'What SINGLE product do you feel the industry MOST NEEDS? As you will see, some of the answers strayed away from the concept of a 'single

A few did mention equipment. For example one suggested the industry needed some 'low cost 12 GHz electronics'. CSD is not certain it has to be low cost to begin with; if we simply had 'some' 12

SURVEY CONTINUES / page 26



Horton Townes-Chairman, Satellite America (Treasurer and Director of SPACE) Seated.

Dave Fedric-President, Satellite America (Satellite Digest 1981 Man of the Year)

Satellite America leads a new revolution in small dish antenna development. This major advancement has dramatically expanded our market by substantially reducing retail prices of quality satellite systems. Satellite America technology now makes it possible for small six- and seven-foot antennas to deliver quality video coast to coast.

Because these pioneering developments by Satellite America have reduced equipment and installation costs, our dis-SA-6 tributors throughout the nation are enjoying tremendous increases in sales and profits.

Our SA-6, SA-7 and SA-10 antennas incorporate our new DualReflect™

SA-7

Feed which relocates the LNA behind the dish where heat and rain are no longer maior factors in system performance. Although competitors may try to copy it, only Satellite America offers the true DualReflect™ Feed.

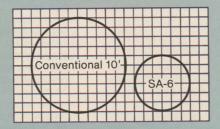
Our SA-6 and SA-7 antennas

Join the Satellite America Revolution

are of one-piece fiberglass construction with a special reflective surface that maximizes efficiency. Our SA-10 antenna is formed of eight thermocompressed fiberglass panels that are perfectly matched for broadcast quality reception. The mounts on our SA-6, SA-7 and SA-10 offer similar improvements, making them the finest engineered and fabricated steel mounts available anywhere. For example, our new PowerRing™

on the SA-7 and SA-10 mounts includes a declination adjustment for the most precise and stable polar mount move-**SA-10** ment on the market.

The dramatic size reduction of our six-foot antenna compared to a ten-foot model is clearly shown in the graph. You can see why wind loading is reduced to a manageable level for most applications and why consumer acceptance is so much better.



Our receiver technology is just as exciting. Our innovative new SA-1000 receiver is the first of a new generation of satellite receivers to come from Satellite America. LED tuning, push button controls, stereo



and "high-tech" styling are the ingredients making this the industry's finest value.

But products alone do not define our company. Our total concept of integrated marketing, advertising

and logistical support sets Satellite America apart. In a few months, Satellite America has become one of the largest sat-



ellite system suppliers in the world. We believe we supply more satellite systems than anyone else in the U.S.A. and we know ours look the best.

Beyond that, our pricing is revolutionary, enabling you to realize even greater sales and profits. No one but Satellite America offers such low pricing for quantity buyers. And this translates into growth-unprecedented growth. That's why we ask you to join us. Be a part of this growth. Call today and secure a dealer or distributor relationship for the future. Satellite America will be there leading the way.

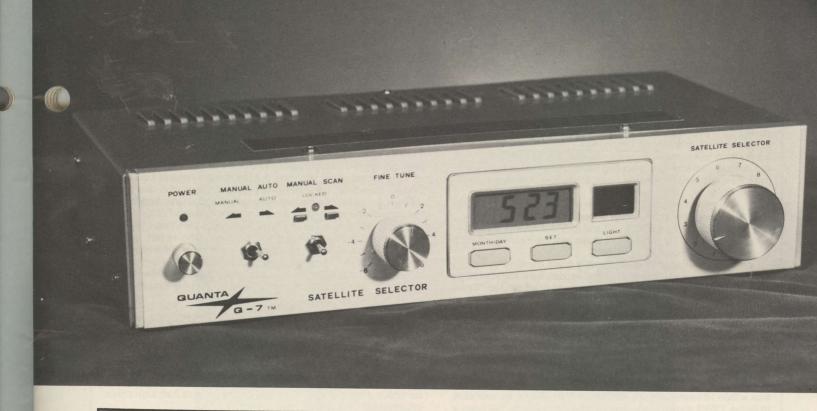
Sincerely,

Dave Fedric, President

Horton Townes, Chairman



entertaining new ideas



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PATENT PENDING

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GHz electronics, at any (fair) prices, we'd be better off than we are now! "We need a high quality mount that can be easily adapted to several (different) antenna faces, and which can be easily transported". It is true; most mounts are semi-customized for one particular type or family of antennas. Unfortunately, the antenna OEMs have a something less than universal approach to back-of-dish design, and this complicates finding a mounting scheme that will interface with more than one antenna or type of antenna. The challenge is there. Anyone up to it?

Another said of mounts "We need a well designed mechanical (mount) package for proper dish support and precise tracking". This same dealer rated the Harris 10' and the Paraclipse 12' antennas as 'top performers' and certainly of those two, the Harris 10' mount

does leave a great deal to be desired.

Yet another wrote "We need a really good tracking system". Modulators were mentioned. "Most modulators are pieces of junk" wrote one dealer from Tennessee. Another suggested "Crystal controlled modulators for UHF channels 14 through 25, at least, with a minimum output of +10 dBmV"

The forthcoming problems with 'scrambling' of some or perhaps eventually all of the cable 'premium' channels has attracted the attention of some. "We need descramblers" suggested one Alabama dealer. A Maryland dealer suggested "We need the legal right to access HBO, The Movie Channel, Spotlight and so on. I am finding it increasingly difficult to sell systems when it is likely that within 18 months these services will no longer be available to home TVRO owners". An Alaska dealer suggested "We need a

cheap, legal, descrambler. However, we need to let the lawyers and the movie services figure out which way is UP first!"!

Others felt the primary 'product' we needed was perhaps some form of self policing. "We need good merchandise, instead of junk" wrote one Tennessee dealer. "We need a quality-ratingsystem for equipment" suggested a Canadian dealer. "Honesty in promoting products would be refreshing" wrote a California dealer. "It is probably too late now, but the industry needs a different pricing structure; one that deals with dealers who are really dealers, and distributors that are really distributors. And leaves the consumers to pay the consumer price" wrote a Florida dealer. Another distributor, in Texas added "Manufacturers need to clean up their policy of who is a distributor and who is not. As the industry matures, those who don't enforce such policies will be out of business". Another Texas dealer wrote "We need an unbiased BBB/Consumers Union Type of organization to publish factual complaints against products and firms which hurt the industry".

All Of Which Says . .

"There is a lot of junk from large and small companies out there in the market, and no way for a dealer to know which is good, and which is bad; except by learning the hard way" (Georgia).

The hard way is to buy, find out, and be ready to buy again. Or, as an Alabana dealer wrote "The hype and untruths are hard to 'filter', but after 18 months of being in the business, I have pretty well figured out what is good and what is not. Boy oh boy . . . was it an expensive education!!!"

LIMIT CONTROL

FOR ACTUATORS

I read with interest Leo Camillie's "Outer Limits Detector" article appearing in CSD (February 1983; page 4). However it failed to address the actuator system that operates at 117 VAC, as so many now do. My own system corrects this situation, and best of all, the parts for the project can be easily found even here in the outback of

From your local Radio Shack, procure a pair of mercury switches (R-S #275-27, at \$1.19 each). Then head to the local lumber yard or electrical supply for a two-gang cast aluminum or plastic weatherproof box and blank cover. Add to this some liquid-tight flex conduit and fittings as required for your own installation (see figure two here). This particular conduit is wound metal construction with an outer vinyl jacket cover, in a variety of trade sizes. The 1/2 inch conduit is fine for this project, and it will readily fit into the cast 1/2 inch tapped holes in the "bell" weatherproof box. End fittings are required and are available in straight, 90 and 45 degree patterns. You will also need a small amount of stranded-insulated number 12 or 14 gauge wire and some

As your actuator operates on (117 VAC) line voltage, care must be

Chris May 4015 CR 245 Bayfield, Co. 81122 taken to avoid electrical shock while working on the project. Equally important is maintaining the safety ground of your wiring system throughout your installation. If you have any doubts about your ability to do this, and produce a 'shock-free' installation, consult a local electrician!

When you advance to the actual wiring stage, disconnect the controller from the power line or turn off the appropriate circuit breaker. Be very certain the power is off; use a circuit tester to be doubly sure.

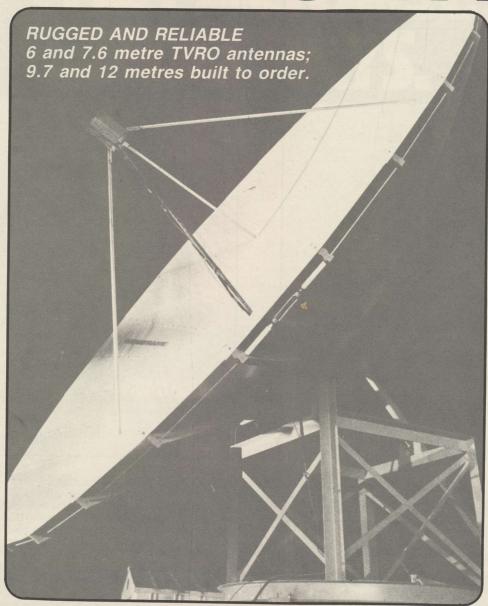
AC actuators have two windings with a 'common' lead. Use your voltmeter or other test instrument to identify the common, eastwards and westwards leads. You will probably need a helper to operate the drive switching. After marking the leads so that you know which is which, leave everything connected as alignment can be made before the actual wiring is begun.

The first step in construction is to drill a pair of pilot holes in the back of the boxes (figure one) to mount the two mercury switches. The switches mount using nylon cable clamps, home made clamps or some perforated metal 'plumber's tape'. You also should drill a couple of 'weep' holes (to allow moisture to drain out) at the lowest points in the box. Now loosely attach the mercury switches as shown.

Next, drill and attach the box on the back of the mount to the side of, or above the polar axis. Use at least two screws so the box does not twist or turn once mounted. Run the flex to the weatherproof box

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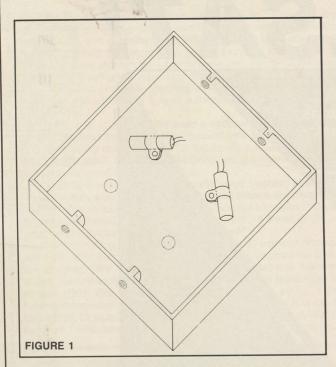
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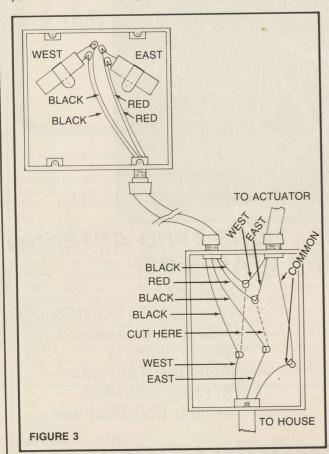
Contact: Wally Baydala or Jim Vines

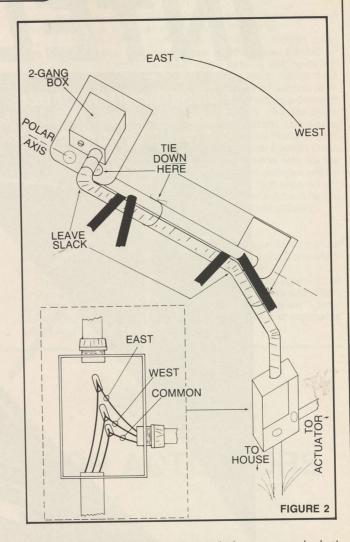
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where the (buried) wiring from your house connects to your drive (CAUTION - turn off the electricity!). Make sure the flex will not be 'dinged' by the travel of the dish, at either extreme. This can be assured by routing the flex along the polar axis for a distance (figure two). Turn the power back on and run the dish to the extreme end points to check for a bind or pinch in the cable. It is a good idea to leave





a little slack, using cable tiedowns close to the box proper, and only at the center of the run along the polar axis.

The next step is alignment. Move the dish to SATCOM F5 at 143 west (or F1 at 136 west if you are in the eastern USA), and then a little past this point. Adjust one of the switches so that it is just opened at this 'western end' extreme. This is your western end extreme, or limit. Screw the mercury switch down and then lock it with some Elmer's Carpenters Glue or some Ducco Cement; and label it 'west'.

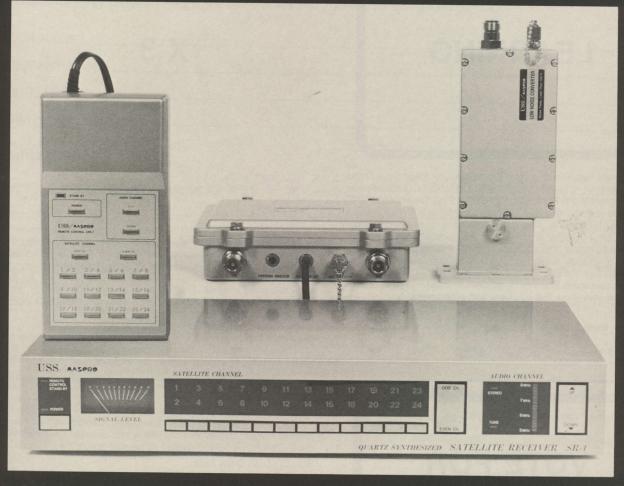
Now rotate the dish back to the eastern sky and find Westar 1/2 at 79 west (or Intelsat at 53 west if you are in the far eastern region), or, if you want to plan ahead, Satcom F2R is scheduled to be at 66 west in mid-83. Adjust the eastern limit in the same way as the western limit, and lock it in place. You are now ready to begin the wiring.

At this point disconnect the motor drive from the AC line or turn off the circuit breaker. Do not rely on the drive's motor switch since it may be ony interrupting one side of the AC line; and, it could be the wrong

You will need four stranded wires, in two colors. Avoid using either white or green as they are often used for neutral or ground conductors in electrical systems. You can always use tape tags on the wires to help you keep them straight, if needed. Electricians seldom use wire smaller then 14 gauge and that is good advice here as well. Stranded wire, rather than solid wire, is a must because of the movement of the system which establishes flex strain on the wiring. Any high quality, 600V (rated) moisture-resistant insulation such as TW, THHN or XHHW if fine for the project. Avoid asbestos insulation wire as it is not moisture resistant.

Ignore the common wire, previously identified. Interrupt or cut the eastern lead and connect each end to a new piece of wire of the

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PAGE 30/CSD/6-83



same color (figure three). Connect these ends to the **eastern** limit switch. Now repeat for the western limit switch. Fold the wires neatly into the boxes, making sure that the cover or the screws do not dig into the wires or place pressure on them. Install the gaskets and covers to weatherproof the installation.

Now return inside and restore the power; operating your dish drive confident that you will no longer have to worry about running your drive off the end and into either the ground or a piece of the mounting system!

LEARNING

X 3

Computers keep coming up in the books and magazines I read and now that I own a TI-99/4A from Texas Instruments, I just had to try out the program in the February 1983 CSD ("Find Them Easier With TRS-80"; page 8). It didn't take me long to learn that the 'ACS' doesn't work with my TI computer. After some instruction manual re-reading, I found that ARC-COSINE is not one of the numical functions in my computer. As a matter of fact, it is the only function not directly usable!

One of my fellow co-workers, a math wizard, came up with a trigonometric function that would substitute for the 'ACS' in the program. It is a converging, binomial co-efficient — long forgotten words to me, but now refreshed. But it is here and programmable:

by Rolland H. Nielsen, Sr. N7ARV 15601 NE 19th Street Vancouver, WA 98664

$$Y_{\frac{1}{2}} = T - (X + \frac{X^{\dagger}}{6} + \frac{3X^{5}}{40} + \frac{5X^{7}}{112} + \frac{35X^{6}}{1152} + \frac{63X^{11}}{2816})$$

The formula works with radians, so mulitply the answer by 57.259779 and the answer will be the decimal value in degrees. The steps add a few lines to the program published in **CSD**, but it proved to be interesting and quite educational (it is never too late to learn!).

The CNR, azimuth, and elevation values read out nicely, but they are a little extra in detail. The figures you will compute will be out to eight(!) places but from past experience with other projects, I found it responsible not to round off figures until the final step.

I am not in the TVRO business, but I find that tweaking my equipment, building demods, and running cable for all of the rooms in our home, plus answering many questions about satellite TV had added an extra, new dimension to my amateur radio hobby.

VOTE FOR BEST ARTICLE (BACKGROUND)

KNOWING WHERE YOUR ANTENNA IS/

(Lionel P. Fortier, Jr.; September 1982). Author Fortier describes a dish motor drive control circuit using Radio Shack parts, featuring seven LED readouts for seven separate birds (expandable to 10).

EVALUATING VIDEO PROCESSING/

(Jack Trollman; August 1982). Author Trollman describes techniques utilized to analyze video filtering circuits in the quest for the 'best looking commercial grade video' with a home TVRO.

DRIVING A POLAR MOUNT/

(Richard E. Shogren; December 1982). Author Shogren discusses the 'forces' applied to a dish drive with different drive mounting configurations on polar mounted dishes.

BUILD YOUR OWN DISH/

(G. Barry Guard; January 1983). Author Guard describes a 10 foot dish that can be built with parts totally available at your local hardware store, including the feed mount and dish mount.

END BROKEN JACK SCREWS

(Leo B. Comallie; February 1983). Author Comallie uses a pair of Radio shack mercury switches to shut down your dish drive before the dish runs into either 'end' of travel.

TRACKING FIGURE 8 BIRDS

(John Drew; February 1983). Author Drew describes an offset feed mechanical system for raising and lowering your feed focal point, assisting in tracking birds that fly a 'figure 8 pattern' rather than maintaining geo-synchronous/Clarke orbit positions.

SWEEPING AUDIO DEMODS/

(Roy Orvis; March 1983). Author Orvis describes a divide-by pre-scaler approach to allow use of a VHF sweep generator to adjust 4 to 8 MHz audio sub-carrier circuits.

TVRO ANTENNA EFFICIENCY/

(Will Jensby; March 1983). Author Jensby discusses why some dish antennas are more efficient than others and describes measurement schemes for dish antennas.

YOUR NAME

CSD TVRO INDUSTRY SYSTEM FAILURE STUDY

INSTRUCTIONS: What we are trying to determine, here, is what the rate of failure is for each part of a home TVRO system. **Failure** is defined as the product or part not working as it was originally intended at any point between the instant you as an installing dealer first open the box, and, the product has been in service for a year or more. If YOUR installations are not yet a year old, please complete the study questions up to the point which represents your oldest installation only. This information is needed to assist us in developing an insurance actuary study which we hope will lead to the eventual availability of a consumer-level (dealer protection) extended warranty program for the industry. See **page 70** here for detailed discussion.

COMPANY NAME	SW TOAG S		3 44 7
ADDRESS	26 al secondo poli	ANGRES ENGLES PERSONS IN CO.	Vad-pottey me !
TOWN/CITY	STATE	ZIPTEL	00
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- Ourv	E 9 00	IMMARY	the second
			No.
			1,11
Place check mark in appropriate position:			
Antennas/Mounts 5% of ours fail within one year at time of delivery	within 1 month	_ within 3 months	within six months
10% of ours fail at time of delivery	within 1 month	_ within 3 months	
20% of ours fail at time of delivery	within 1 month	within 3 months	
LNAs			
5% of ours fail at time of delivery within one year			
10% of ours fail at time of delivery within one year			within six months
20% of ours fail at time of delivery within one year	within 1 month	within 3 months	within six months
DRIVES (not controllers) 5% of ours fail at time of delivery	within 1 month	_ within 3 months 1	within six months
within one year 10% of ours fail at time of delivery within one year	within 1 month		
within one year 20% of ours fail at time of delivery within one year	within 1 month		
30% of ours fail at time of delivery within one year	within 1 month	within 3 months	
CONTROLLERS (not drive jacks)			
5% of ours fail at time of delivery within one year	within 1 month	within 3 months	within six months
10% of ours fail at time of delivery	within 1 month		within six months
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30% of ours fail at time of delivery	within 1 month	within 3 months	within six months
5% of ours fail at time of delivery	within 1 month	within 3 months	tall.tt
within one year 10% of ours fail at time of delivery		within 3 months 4	
	Thomas	within 3 months 11	within six months



within one year 20% of ours fail at time of delivery at time of delivery	within 1 month	within 3 months	within six months
MODULATORS 5% of ours fail at time of delivery	within 1 month	within 3 months	within six months
within one year 10% of ours fail at time of delivery	within 1 month	within 3 months	within six months
within one year 20% of ours fail at time of delivery	within 1 month	within 3 months	within six months
20% of ours fall 1 at time of delivery within one year	Within Thoritin	Within 6 months	

VOTE HERE FOR BEST CONTRIBUTED CSD ARTICLE OF PAST YEAR!

I am voting below for the single, best article appearing in CSD from the list appearing here on page 30. I understand that the winner in this 'contest' is being awarded a trip to Provo.

I VOTE FOR:

Lionel P. Fortier, Jr./ Knowing Where Your Antenna Is Jack Trollman/ Evaluating Video Processing G. Barry Guard/ Build Your Own Dish Leo B. Comallie/ End Broken Jack Screws John Drew/ Tracking Figure 8 Birds Roy Orvis/ Sweeping Audio Demods Will Jensby/ TVRO Antenna Efficiency

> **DEADLINE**: All forms must be returned to and arrive at CSD prior to July 1, 1983. Send to: CSD Forum, P.O. Box 100858, Fort Lauderdale, Fl. 33310

enduring (en dur'ing) 1. lasting. 2. withstanding the test of time.

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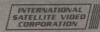


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Get the ASTI Handbook And Kiss TI Goodbye!

What Is ASTI?

Terrestrial interference (TI) is fast becoming a <u>major</u> economic consideration for the installers and operators of TVRO earth terminals. Thousands of dollars, even hundreds of thousands, may be at stake when the earth station is turned on — only to discover that TI is degrading or altogether preventing reception of desired satellite signals. At this point, conventional wisdom used to advise packing up and moving to another site. But now, with many of the available TI-clean sites already taken, and with the advent of a huge and still growing transcontinental microwave telephone relay system, finding another site can be impractical if not impossible. Consequently, most dollar-conscious installers and operators would rather stand and fight TI than switch to another site.

The purpose of this volume is to integrate two practices - avoidance and suppression - into a logical, unified approach that can be effectively applied in the planning and installation of any TVRO earth station system. Conscientious application of ASTI — the avoidance/suppression approach to eliminating TI at TVRO earth stations - will reduce the possibility that TI will be discovered at turn-on, enhance the probability that unavoidable TI can be eliminated, and increase the effective operating quality of the TVRO system.

The authors of this handbook, with years of experience as designers of RF and microwave filter networks, have had ample opportunity to test the ASTI approach—it works! Measured over a period of time, the costs involved in the ASTI approach have proved to be substantially lower than any alternative, especially in terms of dollars saved when the initial site was made operable. Furthermore, both cost and complexity of filtering to eliminate TI are lowered considerably when all essential aspects of the ASTI approach are conscientiously employed.

Contents Include:

The TI Avoidance/Suppression Approach; Why Satellites; How Your Earth Terminal Works; TI Sources; TI Symptoms; Selecting the Antenna for Least TI; TI Susceptibility of Other TVRO Components; How to Select a Site; The Pre-Installation Site Suvey; Defensive Installation; Use of Artificial Shielding; Filtering the TVRO; Filtering Special TVRO Systems; SMATV Techniques; Standard TVRO and Satellite Data; Formulas and Derivations...

About the Authors:

Glyn Bostick is the founder, president and chief engineer of Microwave Filter Company, Inc. He has been designing filters for the suppression of interference in cable TV systems, industrial and defense communications equipment, and satellite earth stations since 1967. Mr. Bostick has written a plethora of technical articles for trade publications, holds several patents and is a senior member of the IEEE.

John Fannetti is MFC's senior technical consultant and head of the company's new Field Service Division. He has 30 years of engineering and earth station troubleshooting experience, including 7 years as president of JDF Communications, a CATV consulting and TVRO installation firm.

William Johnson, chief engineer of research and development, is MFC's "voice" and travels around the country, upon request, to deliver ASTItype lectures at various industry gatherings. In his technical capacity at MFC, Mr. Johnson is the design engineer in charge of special developmental projects. He earned his BSEE at Syracuse University and is currently engaged in graduate studies there.

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Use our toll-free number now to order your copy of the ASTI Handbook and it's yours for \$99 — that's a savings of more than 20% off the post-publication price of \$125. Your investment today in the ASTI Handbook can save you money — big money — at every TVRO installation down the road. If you think you can't afford to buy today, think again — you can't afford not to!

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POSITIONING TRIPOD

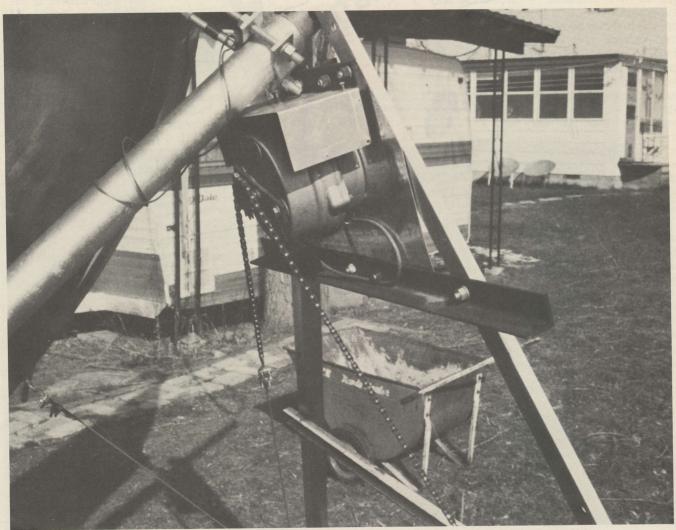
An inexpensive way for positioning a tripod mounted dish can be constructed by locating one of the (relatively) inexpensive and commonly available amateur radio antenna rotators; such as the Alliance HD-73. The rotator is bolted to the rear legs of the tripod as shown in the photo. A standard length of bicycle chain (50 to 60 inches) centered on the drive sprocket provides a powerful up and down action which is converted to azimuth control of the dish through lengths of

MOUNTED DISHES

J.J. Hayes W7CGK 1321 E. 22nd Street Cheyenne, WY 82001

steel cable, and two small boat pulleys located at the lower legs of the tripod mount.

The first step in converting a rotator for this purpose is to disable the potentiometer (azimuth sensor) drive inside of the rotator, and, removing the 360 degree 'stop lever' so the rotator can turn freely through several rotations. A standard rotator will rotate just slightly more than one complete 360 degree circle, to prevent twisting off of



LOW COST HAYES tripod mount with Alliance HD-73 (amateur grade) antenna rotator attached through chain drive and sprocket wheel.



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PAGE 36/CSD/6-83



COOP'S SATELLITE DIGEST-

the cables normally connected to the antenna(s) on the rotating mast. For our purposes, **we want** the drive to rotate **more than one time** and removing these parts will accomplish this for us. Oh yes; be very careful as you remove the rotor housing cover; there are many-many ball bearings floating in a collar inside, which will fly loose and scatter all over the room if you are not careful!

You will need a small (2 to 3 inch diameter) sprocket for driving the bicycle chain. In my case, a discarded garage door opener had the necessary part. For you, the rear wheel drive sprocket from a bicycle will be just fine.

Fabricate an attachment out of strap iron for mounting the sprocket

onto the rotator's rotating drive rod/tube. It is also smart to fabricate a housing out of sheet metal or some other durable material to keep rain water out of the bearings and the system.

Remote control of the dish is now precise. Rotation from SATCOM F3R to F4 takes about 170 seconds. The drive is strong, sure, and very smooth and you will have more than ample 'tweaking' control to insure signal peaking on any bird in the belt.

NOTE: Mr. Hayes requests that readers writing to him concerning this project include a self-addressed, stamped envelope with their query.

THE ROOTS OF TVRO (Part Seven)

At about the same time CBS made a pitch for *more* VHF channels in the major markets. CBS was growing concerned about the interest in UHF, and about how UHF stations might do as CBS network affiliates. CBS, in a statement to the Commission, said:

"...the allocations program proposed will make it difficult for CBS to operate a network effectively because CBS lacks owned and operated stations (i.e. CBS owned stations) in key cities, and we require these stations in these key markets to produce network television shows."

CBS wanted to create a situation where it would be able to own ("for

ABOUT THIS SERIES

American television appears to be in a transition; from the thirty year dominance of a medium by 5 letters (ABC, CBS, NBC) to some yet unknown and largely unexplored combination of mediums that encompass virtually every letter of the alphabet. Many of the participants in the 'new communications wave' have virtually no background with the 'old wave.' Understanding what is happening, today, is far better if you have a grasp of what happened yesterday. This series of articles, re-printed from the pages of CATJ magazine, encompasses television's formulative years. This lengthy report, researched and written by Coop seven years ago, establishes the historical perspective on the events that are shaping today's fast changing telecommunications world.

network origination purposes") stations in a number of new cities. Among those mentioned were Chicago, Boston, and San Francisco. Of the future of UHF, CBS said:

"...for a considerable period, perhaps five years, a commercial UHF station cannot expect to compete on anything like an equal basis with commercial VHF stations in the same community...".

As 1951 turned into 1952 (and the nation had nearly 15.5 million TV receivers in user hands), the final shifts and changes in the soon to be annouced allocation program fell into place. In March of 1952 Mallory, a manfacturer of component parts, announced the first set top UHF (to VHF) converter. The unit (Mallory advertised) "receives all UHF channels for all TV sets".

At the same time an old line communication equipment manufacturer, Hallicrafters, advertised a new TV chassis with "the 2 million dollar tuner". Hallicrafters "guaranteed 150 mile TV reception" with its new line of receivers. A very short time later, Hallicrafters gave up television set manufacture and distribution.

More than $3^{1/2}$ years after the freeze began, the Commission released its new allocation plan. Apparently industry was ready for UHF.

Series Will Continue



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COLUMBIA 10

The eight piece compression molded Prodelin face sits neatly on our universal base making the Columbia 10 one of the most attractive satellite antennas manufactured today. But, best of all, the performance is outstanding. This 10' dish will give quality pictures where others dare not go. The universal base adds additional strength by putting eight struts to the critical stress points of the antenna.



COLUMBIA 8

This spun aluminum dish is of the highest manufacture quality. The textured surface allows for defraction of the sunlight so there is no unnecessary heat build-up at the LNA.

The strength of the universal mount will allow you to sleep easy during adverse wind conditions. Considering the size of the dish the picture quality is satisfactory. Standard with the Polarotor II, any electronic package adapts very easily to this antenna. The **38.6** db gain is incredible at this size.



FULLVIEW

This popular mesh dish has become a favorite because of the invisible nature of the dish when compared with solid dishes. The heavy duty construction throughout with the new rust and chip resistant paint makes it an outstanding value in the TVRO market. Again the universal mount adds beauty and strength with easy adaptability for motorization.



SATELLITE COMMUNICATIONS DIVISION

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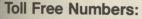
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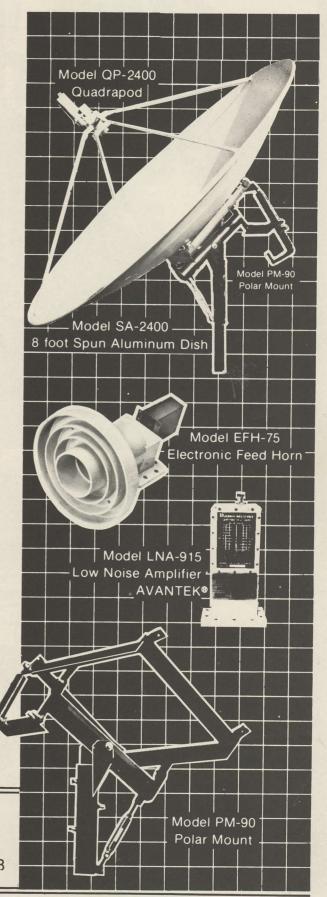
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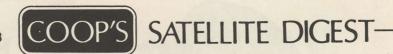
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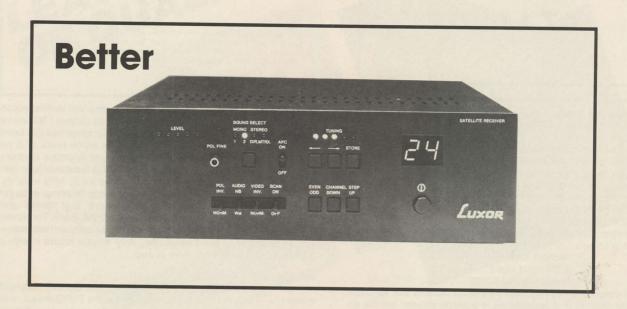
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INDUSTRY AT LARGE

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CSD provides this industry Forum with the understanding that opinions, thoughts and "facts" published are from the writers, no liability for statements extends to the publishers. Address letters to CSD/Industry, PO Box 100858. Ft. Lauderdale, FL 33310.

ANIK Coverage Maps

I have been reading CSD since nearly the first issue. In all of that time I have never seen any maps printed of the ANIK bird series coverage although many maps have been published for the various US DOMSAT birds. I am in particular interested in knowing what type of coverage there might be from ANIK B and D in Florida. Also, you have reviewed a great deal of equipment in that time but you have never reported on the Vidare dishes. I wonder how they might stack up against say the Paraclipse 12 foot antennas. I have also never seen a review of the Arunta SSP-416 receiver. It has many features which other receivers do not have, including a filter for the special audio reception problems from ANIK B.

Richard Kaufman 3 Sheffield Court Livingston, NJ 07030

ANIK maps are not released by the Canadians but we think from field reports that we now have a pretty decent handle on where ANIK B and D can be received and with what size dishes. We are working on a pair of maps for publication shortly. The worst case in Florida would be the far southern (Miami) populated

areas. There, a high quality 12/13 foot antenna will deliver noise free or almost noise free reception with a 100 degree LNA and a high quality receiver. The Arunta SSP-416 receiver has not been directly reviewed although we did discuss some tests of it on pages 62-63 of the October '82 issue. When Arunta's Grotsky was here we did some testing of two of the 416 receivers (one with a standard 28 MHz wide IF, another with a special 36 MHz wide IF). The ANIK signals require some special audio filtering, at baseband, to get rid of the 'multiplexed carriers' that 'tinkle' and 'crackle' with standard audio recovery. AVCOM, Earth Terminals and others offer special ANIK audio filters as outboard accessories. To the best of our knowledge, only Arunta offers it with a built-in switch in the receiver proper.

WATCH OUT

I am an attorney specializing in patent, trademark and copyright matters but I have not had much experience in the TVRO area. I have had occasion recently to attempt to review the law in this area. If there

INDUSTRY CONTINUES / page 51

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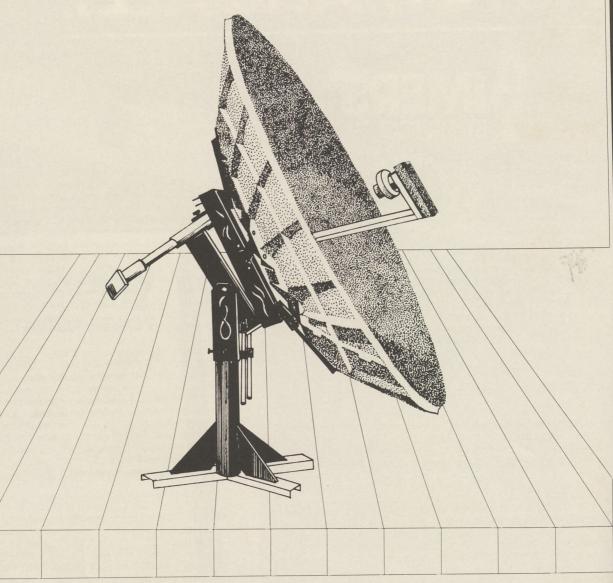
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INDUSTRY / continued from page 46

is one conclusion that can unquestionably be drawn, it is that the law in this area is unsettled

Therefore, it appears to be a very fertile area for a legal article or commentary. I plan to write such an article and have begun just recently to assemble materials on which such an article can be based. Your magazine appears to be very informative and it appears that Coop, as an individual, is very knowledgeable in this area. I would appreciate it if you would provide me information and an opinion from the industry side so that I might make a thorough and intelligent review of the laws and the problems in this field.

Charles A. Bevelacqua Watson, Folds, Steadham, Sproull, Christmann & Brashear Gainesville, Fl. 32602

When the attorneys think we live in an 'unsettled area' and we are 'very fertile for legal commentary,' we've got big problems! that's what we need most right now; 47 attorneys writing articles in Law Journals telling everyone how there is no legal basis for what we are doing!

IGNORANT ACADEMICS

I have recently read Bob Cooper's excellent article on home TVRO systems appearing in the March issue of Videoplay Magazine. I was surprised and somewhat overwhelmed by the proliferation of products, including microprocessor based receivers and satellite tracking devices with infra red control. Along with several of my colleagues, am exploring the possibilities of installing TVRO systems here on the campus of the University of California (Santa Cruz), for research and entertainment applications.

For several reasons we cannot consider the commercial grade systems, and therefore our search is concentrating on the top-of-theline home TVRO equipment. We would appreciate being placed in contact with (honest, unbiased) firms that are in a position to help us plan a system for the campus using the best in home technology today. Thank you in advance for helping a group of well meaning, but ignorant academics into this exciting area of technology

C. Leo Ortiz **Division Natural Sciences** Thimann Laboratories Univeristy of California / Santa Cruz Santa Cruz, Ca. 95064

Each of us, in our own way, is an 'ignorant academic'. We are simply bright about different things. Will a few of you in California, capable of offering a set of top-of-the-line systems to the University, contact Mr. Ortiz directly, please? And no junk, you

TELL IT LIKE IT IS?

As a distributor of equipment and a follower of CSD almost from the beginning, I'd like to comment on the recent publication of reports on problems with various equipment items in CSD. I think I understand your stance in the past, as to the reporting of equipment sent to you for analysis and subsequent reporting. During the first level formative days of this industry, a bad report in CSD could severely damage a new manufacturer before he got off the ground, and place him in great danger of losing the investment in R and D, start-up tooling and so on. I assume that you, in fairness to the manufacturer, chose (on equipment tested with unfavorable results) to report to that company privately, allowing them to address the problems you spotted without the glare of public publicity. I have no argument with this approach, in the light of everyone's desire to see more and more manufacturer involvement and investment, and better product with lower prices. I believe that now, however, the time has come for CSD to change that policy and I want to commend CSD for the recent reports on problems with

In my view, I see nothing wrong with continuing to encourage manufacturers to place new products in real world test situations, with private reporting of the test results, as a part of their evaluation and testing procedures. If this should include a test at your extensive facility, with a private report, this could be a good and valuable input to

the further development of their product. I do feel that there is a great difference in this type of private field testing of proto-type equipment, and the testing of other equipment which is in routine production. In the latter case we have the real possibility that claims being made for the in-production products may not meet the operational characteristics of that equipment.

In my opinion, and in the opinion of the many dealers with whom I do business daily, CSD has a responsibility to assist the buying dealers, who subscribe to CSD for just this reason. These dealers want honest and fair reports, and they want to know which equipment performs to the standards claimed, or fails to meet those standards. For this reason I believe the recent CSD reports, and the current survey being undertaken, and future reports yet to come, are of vital importance to the public who rely on the informed dealer helping them make an intelligent buying decision. I hope you will continue to address products 'square-on' and not back off when you find something that those of us who are spending money for product should know about.

> Larry W. James Patmar Technologies, Inc. P.O. Box D Claremore, Ok. 74017

The latest barge shipment to Provo, from Fort Lauderdale, has just pulled into the Provo dock. On our VHF radio, we have been informed that in the containerized shipments there are five TVRO antennas on board for us. Three of those are what we would call advanced proto-types, from a manufacturer who is now tooling up for production. A fourth is a unit in regular production. sent down for a complete field evaluation on the Provo test range. The fifth is a replacement antenna, ordered for WIV, at our national transmission center. The barge typically comes twice per month, and while we don't average five antennas per shipment, three per shipment is not unusual. We happen to be so located that with the wide variation in satellite signal levels present here, and the wide range of view of satellites from Europe/Africa on the east to F5 on the west, we can test virtually any antenna to almost any design tolerance in just a matter of hours from getting it put together and on the mount. With suitable test equipment, and numerous 'standard reference antennas', we don't lack for the basics of performance comparison. However, we only see a small fraction of the total variety of equipment offered for sale, here, and must continue to rely upon feedback from dealers and distributors to give us an accurate sense of the pulse of the industry at any point in time. It really takes both efforts, private testing by knowledgeable people, and the massive amount of feedback we get weekly from CSD reading equipment movers to stay on top of the changing picture.

FAIR Is Not Fair

Since the Houston SBOC Show in 1980, we have been actively involved in distributing TVRO products. I must say I have usually enjoyed and appreciated your dedication to the industry. However, with your April issue and the report on Janeil antennas, I think the front cover display was an unprofessional decision on your part. I feel that since we advertise monthly in your publication, and we handle Janeil as well as many other products, you should have contacted (other) distributors for their opinion. Our experience has found Bob Dushane to be one of the most cooperative and legitimate manufacturers we have dealt with to date. We place him next to Jamie Gowen, another sincere, honest, hard-working manufacturer.

I (do) get annoyed with your constant referral to J.V. Electronics as one of the largest, well-known distributors. Well known is certainly agreed with by many of the manufacturers. However, a one-man operation that promotes products in his manner is certainly not a credit to the industry. I understand that Joe is a very nice person. When we struggle to inventory products, offer technical back-up, have a toll-free number, offices with a showroom, as well as several employees to help support the dealers, your articles at times get out-of-hand.

There are many of us trying to make this a professional industry; therefore, I'm enclosing a copy of a letter recently sent by one of the

INDUSTRY CONTINUES / page 54



COOP'S SATELLITE DIGEST-

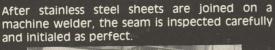
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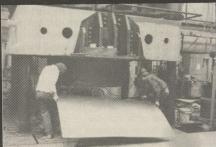


NOV



Antenna is checked for accuracy of parabolic





The blank for a 90" antenna is carefully positioned on the 75 ton hydropress.



Press operator watches as press starts to pull away from the newly formed antenna



Workmen pull stainless steel antenna from press and stand it on end for water drainage.



The dish is placed on a cutting rack and operator neatly trims surplus stainless steel with the plasma cutter as the antenna slowly turns on the



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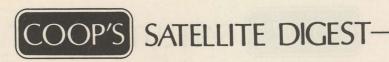
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PAGE 54/CSD/6-83



INDUSTRY / continued from page 51

leading manufacturers to Joe Valentino of J.V. Electronics.

Sally DiDonato

National Satellite Communications

Plaza 7

Latham, NY 12110

The letter in question was written by Amplica's Jerry Moore. In it he takes Joe to task for advertising Amplica RC-10 product for \$699 in the April issue of CSD, because, as Moore asserts, the lowest price JV ever bought at was \$790.

Joe Valentino, good guy or bad guy, is discussed at some length in this month's Coop's Comment. Sally's suggestion that we have written too frequently about JV, in articles, leaves us baffled. The only time we can recall mentioning JV in print in the last year (other than this issue!) was the November 1982 issue. There we took Joe to task for running advertisements (October 82 issue) in which he made operational claims (antennas and receivers) which we felt were contrary to good engineering practice. At the time, he was claiming that a certain mesh antenna had 44 dB of gain in the 13 foot version; and that a certain receiver had a threshold of 6.5 dB. We found both claims offensive to the industry. And we doubt JV got any good publicity from the incident.

Janeil. No question they got the raw end of the stick on the April issue front cover. We published that photo, and included the reports in the April issue, because we had been unable to uncover any evidence that they were taking responsible steps to clear up an area of poor product design. We could have included a dozen additional reports concerning rust and problems with their antennas, but chose not to do so in the interest of fairness. At the recent Las Vegas show, before the April issue cover came out, Bob Dushane did show to us a recently completed technical report, prepared for them by an outside consulting firm, on the ability of their present series of antennas to hold up in a moist environment. If the report is taken at face value, they have now

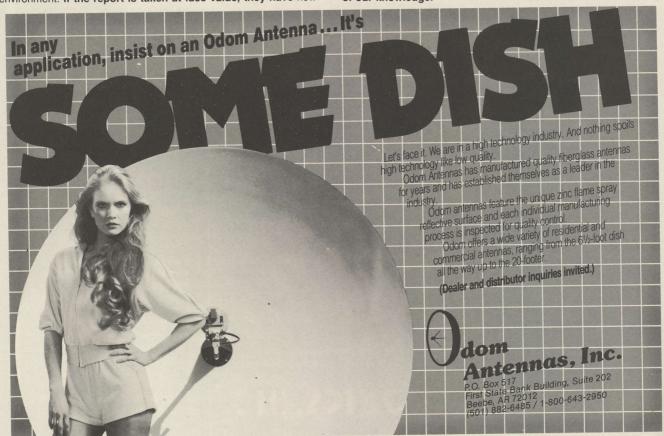
cleared up the rust problem. We would be interested in hearing from readers who are using the present generation of Janeil antennas, in areas where metals do rust (the salt flats of Utah don't count!), as to the vulnerability of the antennas to rust.

GOOD CHOICE

I would like to commend CSD on the selection of Jamie Gowen and Andy Hatfield as the industry 'Men Of The Year'. We recently used a 20 foot ADM dish with an AVCOM 3 receiver to produce a world wide event for the Christians on the Isle of Trinidad in the Caribbean. The event originated in Dallas and we were unsure of being able to pick it up at the southernmost island in the Caribbean. We knew, at the time, of no one operating a non-commercial TVRO there. With our (then) limited knowledge of satellite communications, we approached the challenge with some caution. I contacted several TVRO equipment manufacturers and after sifting through the data, ADM and AVCOM came up to the top of the pile. Jamie and Andy both took a personal interest in the project and were most helpful. Without their help, we could have easily failed before we got the antenna up. There are, as I am sure many are aware, many unusual factors to consider when dealing with a foreign government. As fate would have it, we picked up our signal on Westar 4. As the day wore on the picture got better and better and the special evening telecast we were looking for was absolutely beautiful. We also found service from SATCOM F3R at a look angle of 11 degrees and we had at least 22 of the 24 transponders in the region with no objectionable noise. With the help of the STT manuals, we learned the basics of this fascinating world. We must in particular thank CSD for the untiring efforts to keep us informed; as an impartical guide, CSD is invaluable!

Michael Magnuson P.O.Box 3494 Winter Park, Co. 80482

There are many forms of pioneers; Magnuson is one. The 'first' to do something in this field, anyplace, always has his work cut out for himself. There are a few other TVROs on Trinidad, as CSD has reported, but none in the 20 foot ADM class, to the best of our knowledge.





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MASSIVE problems with space program; LANDSSAT satellite (4), used for 'remote sensing' of earth and its resources, has developed powering problems. Millions of dollars involved in data monitoring and retrieval. Advanced TDRSS bird, meanwhile, may recover from problems associated with firing from Shuttle into initial elliptical orbit, but parts of it will never function as intended. Two of 24 hydrazine thrusters, used to manuever bird in orbit and to help to maintain attitude and correct spot above equator, are lost. NASA claims fuel left on board more than adequate to support seven to ten year lifetime of manuevers.

DURING June, look for launch from French-European Ariane site of new 12 GHz ECS bird that if launched successfully will provide first 'cable TV feeds' to Europe's new cable industry. Also in June, Hughes Galaxy One bird is scheduled for Florida launch and if all goes well, it will replace SATCOM F1 at 135 degrees, and bring an eventual 18 new channels of cable programming to western sky. F1, rapidly growing too old to perform, will move further west for a temporary residency.

COMING up in mid-summer is the launch of AT&T TeleStar One, the first of the new generation of Comstar/Bell birds. AT&T has asked FCC to allow it to place T1 into a **new** orbit position, rather than using it to replace badly ailing D1/D2 birds now co-located between W4 and D3, at 95 west. If FCC refuses to give AT&T brand new, previously unused orbit spot, it will sit in for D1/D2 as originally planned.

MEXICO wants not one, but two DBS systems. The 4 and 12 GHz combo birds, Amigo 1 and 2, funded by a world bank loan last month, have joined 'on paper' with plans for a standard 12 GHz DBS system. That's bad news for US which felt that the long term Mexican needs would **not include** orbital space for a 12 GHz bird. Now Mexico says it will need a **pair** of 12 GHz-**only** spots in addition to pair of spots for dual band Amigo 1 and 2 birds.

FCC made first move on allocating orbital spaces, ahead of the time table projected in May CSD. Commission is opting for a complicated plan that involves allocating 12 GHz spaces at typical 2 degree spacings, but a 4 GHz plan that varies separation between birds as a function of traffic types planned for each bird. Some of the 4 GHz spaces will be as close as 2.0 degrees, some further away. None of this is going to happen overnight; FCC suggests gradual phasing-in of plan at 4 GHz as present and new generation satellites become melded into future system. A detailed look at all of this, as it shapes up for the home TVRO and SMATV industry, in the July CSD.

SELECTV's move to Westar 5, from Westar 4, came with little notice during May. Movie firm has agreement with SPACE that allows SMATV systems to carry service to multiple dwelling and hotel/motel systems, and expanded to 24 hour per day operation earlier this year. Western Union appears to be re-grouping users for W4 and W5 combination, attempting to get all but **broadcaster** related services off to W4, in favor of cable and subsidiary services being based on W5.

ROBERT WOLD has picked up lease rights to Citicorp's transponder on Westar 5 (trandponder 5, horizontal). This makes the tenth transponder to be under Wold's care, and they will use it for cable or broadcast video. Watch for new signs of activity there.

FORDSAT is effort of Ford Aerosat to add yet two more satellites into orbit for service to North America. Ford proposes dual band (4 and

12 GHz) birds, with a total of 54 transponders on board **each** bird. If approved by FCC, under new tighter spacing proposal of Commission, there would be 54 separate band/bird approvals through FCC.

SPECIAL DELIVERY PACKAGE is a new Wold satellite service linking approximately 90 US television stations for special feature movie events for simultaneous or slightly tape-delayed broadcast by terrestrial stations. "Can You Hear The Laughter", and, "The Fan" (both edited for regular terrestrial television) flew in April. One per month will be routine schedule.

DISNEY start-up on W5 provided few surprises, although many report that Disney audio (6.2 and 6.8) has 'muddy quality' to it. Reason for this, if you are experiencing problem, is that Disney is deviating (modulating) their audio 'harder' than other cable services, apparently an effort to extract last bit of 'hi-fi' from movie sound tracks that were originally recorded for play in large theater audio systems. One solution is to widen out the 'passband' of your TVRO receiver audio system, paying particular attention to filtering after audio discriminator.

ORION, the firm that proposes to link European (cable) to American (cable) via a 12 GHz bird located over the mid-Atlantic, is getting unusual amount of attention from both FCC, and Congress. Intense lobbying is underway, COMSAT and Intelsat dead set against US FCC approving 'independent link' between continents; and, ORION backers just as anxious to pull it off. COMSAT fears that if this is approved, their worldwide virtual monopoly on satellite communications wil come apart. Orion backers feel that if there is to be viable European cable industry, it will have to feed off of, and feed to, American and Canadian industries already underway. Big (BIG!) bucks are involved in this one.

ASSUMING first TRDSS can be put into proper geo-stationary/ Clarke orbit position, TRW says that satellites could be reconfigured to provide extensive television coverage to Pacific basin and other regions for a mere million more dollars. Problems with first TRDSS are overshadowing plans to modify second and third birds for Voice of America use to 'broadcast' television programs to remote areas of the world. Under original program, Western Union was to operate the 4 GHz transponders on TDRSS (3 birds in all) and NASA the other 'secret stuff' on board. When WU pulled out, that left the 4 GHz transponders virtually unspoken for, but in place. Now NASA and other government agencies are scrambling to see who gets to use them, if at all, and for what.

IT is formal; MCI, the firm that has challenged Bell for long distance service, is now the 'owner' of 24 satellite transponders; 12 each on Hughes Galaxy 2 and 3. That's half of the transponder capacity for each bird, and pretty well ties up how the last two Hughes birds will be utilized when launched later this year and in 1984.

CSD reported NBC was hot on the trail of 12 GHz network affiliation system in April issue; we missed the possibility that network would sign-up with SBS for use of present SBS birds, in complicated deal that involves COMSAT. It is still alive, and if it comes off, NBC may get one to three year jump on CBS and ABC in getting their primary delivery systems onto satellite.

INDIANA firm reportedly offering to 'rent' a home TVRO to rural homeowners for under \$40 per month. Installation is extra. Receiver,



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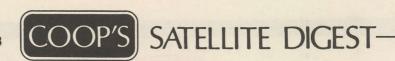
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PAGE 58/CSD/6-83



LNA, coax, modulator . . . 'are probably 'extra' also.

F2R has achieved geo-stationary/Clarke orbit position at 139 west. Newest RCA bird is intended for use almost exclusively by radio networking and data clients, so don't expect much in the way of television here except on an 'occasional' basis. One of the larger users will be NETCOM International, provider in past of transponder services for fight promoter Don King. RCA officially carrys F1R as a 'spare bird', which means that if F3R quit for some reason, the cable traffic would possibly get shifted to F1R on short notice.

SPN, found these days on F4, had ambitious plans to program up to four full time transponders by 1984/5. Plans have been cut back; firm will grow to two transponders, taking all non-English language programming off of F4 and onto Hughes Galaxy bird sometime in

1984. Future home of SPN could also be Galaxy.

ARGENTINA, already making extensive use of Intelsat for relay of national television service, will make decision soon as to launching own domestic satellite system. Program being considered would have only four transponders on board, of a 'semi-DBS' format, allowing dishes down to ten foot to play within most favored boresight.

NEXT SHUTTLE launch scheduled for first part of June, no earlier than 9th, and hopefully no later than approximately 20th. On board will be Canada's second 12 GHz bird, C-2, and latest generation Indonesian bird, Palapa B. The new Palapa is 24 channel, more power and better antenna systems than present generation birds which are akin to the old Westar 1 and 2 birds. Those in Pacific receiving Palapa service should experience considerable improvements in service levels with activation of new generation birds.

COMTECH Data is building 50 plus station radio network link via satellite for the Arkansas State Radio Network. System, using audio channel on transponder 2 of Westar 3, will beef up existing terrestrial

link between members of state network.

CAN/AM satellite conference, sponsored by STTI (1-800-654-9276, or, 405-396-2574) is scheduled June 24-25-26 (Friday through Sunday) at Minneapolis Radisson South Hotel and Executive Tower. Approximately 200 booth spaces have been taken and crowd with heavy Canadian flavor is anticipated.

COOP / continued from page 5

organization such as ABC are immense. They can move switftly, and be all over the map in a matter of hours. To handle their 'attack' requires candor, talent, and smarts. The average guy out there selling TVROs has few of the required talents and virtually none of the required experience. There are hundreds of dealers reading this right now who have yet to join SPACE even as individual members. There are thousands more who have not joined as 'SPACE DEALERS.' Nobody is getting rich in SPACE; nobody is taking your money and then squandering it on big Washington lobby-quarters. SPACE exists because we do have enemies today who want to see that we are not in business tomorrow. SPACE exists because when the Indians attack, it is traditional and smart for the wagon train and ALL of its members to circle their wagons and put up a united defense. We are being attacked; and these Indians have far more resources than the American Indians of the 1800's.

The second part of this message is that when ABC or any national news organization knocks on your door asking you to help them 'prepare a piece on TVROs,' that you remember what their motives are. They are not going to make you a star. The week after you appear, you will walk down the street and nobody will say to you "You were magnificent on national television." But, what they 'trap' you into saying, however innocent it may have seemed 'in context,' will be remembered if you say something like the guy in South Florida with the backyard terminal on World News Tonight. His 'the airwaves are free; they use it, I can too' statement was the perfect set-up for MPAA's Valenti to 'educate the public' about television thievery. Even Behar's straightforward five seconds explaining that we have attempted to pay HBO et al in the past was shoved back down our throats with the quick response that HBO et al are going to scramble and they find billing individual homes too complicated to pursue.

So what should you do when approched? Suppose you were the dealer that sold a terminal to a bar in South Carolina that likes to tune in Max Robinson. Wouldn't you jump at the chance to get on ABC by showing off that dish? Sure you would. "All you have to do is show us



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how it works" they tell you. So you take the dish through the arc and show off a hundred signals or so. Later, in editing, they use that video to illustrate how 'private' transmissions are being 'stolen' by people with dish antennas. I can just hear Lynn Shearer saying "Even your private telephone calls may be tapped by this new technology; people can sit in their homes in Fargo, with a dish in their yard, and listen to your most private telephone conversations." And she'd tag it with "Clearly, the technology has outpaced the law and new laws are required to bring this under control.

The most important thing you can realize in all of this is that we are at war. Some of the guys on the other side have resources which defy description. They can make you say anything they want you to, in their edited format, because they control the joy stick on the editing machine. And when they put you on the air, what you didn't say will be

in the homes of 20 to 30 million folks. Instantly

My recommendation is that you leave big time interviews to people who have the experience to anticipate how something that 'seems innocent' might be 'reshaped' in the editing room. If you are not a member of SPACE, join. And then refer all such requests for interviews and 'story bites' back to SPACE. The enemy is all around us and we had better be circling our wagons. And there is no place in our industry today for 'loose lips' that might help the enemy penetrate the integrity of our encircled wagons.

INTERESTING Response

I anticipated that we might get a 4 to 5 percent response from the industry equipment reliability survey forms published in the April issue. I was off by a few percent, on the low side. I'm grateful to all of those who took the time to fill out the survey forms since it provides us with a far better base than we previously had on the matter of equipment vulnerability to time and the elements.

As we report on page 8 of this issue, there are several clear areas where the industry needs to clean up its engineering act. There are also a number of areas where marketing is shoddy and while I address that in the report appearing on page 8 here, there is room for additional

comment as well.

There was an uncommon amount of mail relating to one distributor in particular. It ran about 70-30 against this distributor and some of the letters ran to several thousand reasonably well chosen words detailing frightful tales of busted motor drives, broken or missing antenna parts, unsound technical advice and a rash of other problems that the .70% 'agin' folks claim they have had with that distributor. I'll not keep you in suspense; JV Electronics is the distributor.

The other 30%, relating to JV, were so high in their praise of Joe Valentino I found myself wondering if these guys were writing to me about the same Joe Valentino which the others were writing about. Several dealers took the time to create letters telling me in some detail how Joe had helped them over a technical problem, found parts they could not find elsewhere and so on. It almost had the appearance of a

Doctor Jeckyl and Mr. Hyde kind of scenario.

I am clearly in a quandry concerning JV Electronics. More than one 'anti-JV' letter pondered how CSD could continue to accept advertising from such a firm. One such letter, taking us to task for reporting on Janeil antenna problems in our April issue, came from a distributor. The distributor was basically upset over the bad Janeil press, but at the same time got a couple of digs in at Joe Valentino in the process. Joe is obviously not popular with some of the other distributors.

JV Electronics is not a big conglomerate. As Joe will tell you, he operates out of his home and while he has attempted to maintain a separate office from time to time, he prefers to run it all largely from his kitchen table. His number one assistant is his Mom which is a com-

mentary on Joe.

JV's prices are often lower than others in the distribution end of this business. In some cases Joe's price may be so low that he is actually losing money on an order. I'm not certain he realizes this when it happens, either. I've seen him take a \$500 unit and add \$25 to it and call it 'profit.' Nobody can operate long on a 5% profit margin. That doesn't begin to handle the cost of doing business, even from your own kitchen table.

Joe has gotten himself in some hot water from time to time by

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being too quick to offer to help out some dealer. He has contacts in everything from audio and video gear to TVRO, in many respects he is not a distributor; he is a 'buying service.' Joe is also an 'easy mark' for people who are new to the business, and who need step by step guidance in some facet of our business. That's the kind of Joe-Valentino-Generosity that seems to get him into trouble. Take the poor fellow in Nevada who needed some help in laying out a trailer park MATV system. There was about 3,000 feet of cable involved; a true 'SMATV' system. Joe says he told the fellow to go to an MATV designer to get the system laid out. The fellow says Joe told him to bundle up 3,000 feet of RG-59/U and some household type low power modulators and start laying cable. Joe retorts that the fellow insisted on having Joe do it, 'the cheapest way possible,' without regard for whether it might work or not. It didn't work.

Joe is also an easy mark for new products. He has a new major product breakthrough almost every month, or so it seems. I remember a receiver that he insisted that we take to Provo and 'test' back last summer. He said it had a 6 dB noise figure threshold. We told him that was an impossible claim. He said it was new technology, and the manufacturer assured him it would "outperform every receiver in the industry" by a wide margin. Reluctantly we dragged it from Omaha to Provo and sure enough . . . it was just another 10 dB or so threshold receiver. We told Joe that, and after he got some more experience with it on his own, he finally accepted that this was not another super product. Recently I have noticed that this particular receiver is being severely discounted around the country.

In a phrase, I think Joe is gullible when he should not be, too eager to extend a helping hand when he should be standing back and simply selling product, and perhaps not watching his profit margins adequately. He won't appreciate this free advice very much.

After I write this, but before you read this, Joe is scheduled to visit here on Provo. He is bringing with him a couple of antennas and a motor drive which he feels are clearly superior products. Obviously we will see just how they shape up, down here on the Provo antenna test

One of the letters from a competitive distributor said that 'Joe is

your friend and you won't say anything about him that will hurt him.' That's hogwash. I am a journalist first, and a friend second. Ask Bob Behar of Hero. Or Bob Maniaci of Boman. Or ... there are numerous examples where friendship or not, I call it like I see it. Being "Coop's Friend" is no guarantee of immunity to my criticism when the facts warrant criticism.

Joe Valentino. My suggestion is that you deal with him because of his price and prompt service. If you need technical design assistance, go to an engineering firm. If you need a product, stick to the tested and evaluated products that you know have withstood the marketplace forces at work. Don't ask Joe to help you design an MATV system, and, don't become a testing ground for some new product that just came out yesterday.

KOREA or Bust

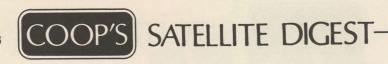
You can always tell when an industry is growing too fast, and people are starting to step on toes. The lawsuits, or threats of lawsuits, begin to fly.

There is another way to tell when growth is too fast; the waiting time for established products gets longer and longer and longer. One of the industry's larger distributors took delivery on just under 4,000 receivers this past month (May). Each of these units promptly went to a dealer, and they started out the month with almost no distributor stock and they ended up the month the same way. Right now, today, the pressure to deliver product to the waiting marketplace is absolutely intense.

A fellow manufacturing receivers will watch his order backlog grow just so long, and then he'll be forced to take steps to either cut off accepting new orders, or figure out a way to dramatically increase his receiver production.

If you are a stateside manufacturer cranking out low-end receivers that ship out the door for around \$250 each in huge quantity pricing lots to the biggest buyers, and you are faced with going in hock for the rest of your life to borrow the money needed to expand, and keep up with production requirements, that's a pretty big throw of the dice. You





could borrow a couple of mil, build a new factory, quadruple your employee roster and place huge orders for raw parts. And you could awaken next week and find that SPACE failed in its bid to keep what we are doing legal, and you are suddenly out of business. And in hock for more money than you could ever possibly repay. That's a terrifying thought. But what other option do you really have when business is booming and people are beating down your door demanding product?

One possibility is that you bundle up your technology and you head off to Korea to find some firm there that can crank out your receiver for you. Several have done this in the past and we've seen a few examples of Korean manufacturing expertise in the industry. The first we saw actually came from neighboring Hong Kong at the San Jose SPTS 80 show. So getting stuff built, receivers in particular, in the Far East, is not new to us.

What is new is that the volume is now, suddenly, there. Previous attempts to get Far Eastern manufacturing help have always placed the horse before the cart; that is, getting the manufacturing arrangement established before the market for the product was proven. We have several such products available to us right now, built in the Far East, which work reasonably well, but which have never made much of a dent in the marketplace

The key to all of this seems to be to prove the technology first, at home. Work like Hell to get the product de-bugged here, and work equally hard getting the product accepted in the marketplace. Having accomplished those two objectives, then you pack up your designs and manufacturing tricks and head into the Far East to 'shop for' a manufacturing facility. If your timing is impeccable, you will shift from US produced product to off-shore produced product with a few transition months in between, just as the marketplace demand for your product outstrips your own ability to produce it at home.

The beauty of this arrangement is that you are allowing a hungry Far Eastern manufacturing concern to gamble their money on setting up a production facility for you. If things get slow again, and if your contract with the supplier in the Far East was properly drawn, you can simply cut back on the imported versions of the receivers and maintain your parallel US production until the market improves again.

The downside of this is that if you are not careful, the technology to take to the Far East, and teach there, may come back to haunt you. Back in the Hay Days of CB radio, some of the manufacturers who went to the Far East found themselves competing with their own US designs about 90 days after they started importing their Far Eastern built products. Those clever guys in the Far East were building two versions; yours and theirs! The 'guts' were virtually identical; the outside cabinets were different in appearance only.

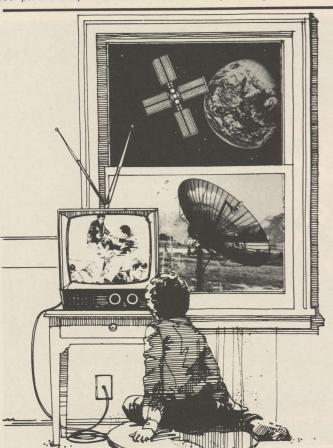
The best protection a US manufacturer considering the Far East has going for him is his tight control on the US marketing of the product. If you can control a distributor and/or dealer network, you are in a position to accept the 'copy-cat' threat. And do something about it if it occurs. And that is the safeguard that some of the pioneer US suppliers are taking as they head into the Far East this spring and summer to work out manufacturing arrangements.

How does any of this impact on the dealer?

Well, if the design is US and it is backed up with US based firms, you know that you probably will not get bitten by the 'not-made-here' or we don't read Korean' service problem. If, on the other hand, the unit is ostensibly designed in the Far East, made in the Far East, and sold from the Far East through distributors who have no technical expertise to service the product, then you have a real problem on your hands.

If some of the numbers I am hearing come true, the radio that is now costing the super national distributor or marketing organization \$250 may well be available to him, in identical but Korean built form, for close to \$100 by early fall. I expect some of that difference to stay in the super distributor's till. I expect most of that difference to show up as the next super-major price breakthrough for system packages; say at about the November SPACE Show in Florida.

In just a few weeks, in Minneapolis, we'll all have an opportunity to see just how real the Canadian TVRO marketplace explosion really is. STTI's Canadian-American 83 show will be a test of American ability to produce hardware, Canadian ability to pay for hardware, and the joint Canadian/American resolve to get it across the border and into



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COOP'S SATELLITE DIGEST PAGE 63/CSD/6-83

backyards.

After Canadian Communications Czar Fox de-regulated home and tavern and motel grade terminals this past March (see CSD for May, 1983, page 5), the whole Canadian TVRO world exploded. I'm told that there are black markets for gear developing in Canada; not because the gear is illegal anymore, but strictly because it is in such short supply. There has been an increase in thefts; LNAs are disappearing off antennas, and whole dishes are disappearing out of backyards while their owners are at work!

Something surely has to give in this situation. In the legal end, Czar Fox has alredy backed up a step or two, in the SMATV area. He now says that SMATV systems will be treated like cable systems, and nobody is to turn on anything without formal approval from the program suppliers. If this one sticks, it closes a 'loophole' we detected and

reported on in the May CSD.

The shortage of hardware in Canada is coming at a time when most of the major US manufacturers are experiencing severe demands for their product within the USA. One manufacturer noted to me "It could not have happened at a worse time; the market is simply far larger than the whole industry capacity to ship."

My prediction is that alot of people will waste alot of time in Minneapolis selling or buying hardware that can't be produced and delivered in the near future. My further prediction is that the Minneapolis show may well be a crossing point for the Far East jumping into our business with vigor. All of the basic elements for a Far Eastern invasion are in place. The price has come down, the engineering is virtually mature, and the market demand is rising far faster than the market supply. Well, it was a nice home-grown industry while it lasted!

The manufacturers have pretty well run this industry since the day that Andy Hatfield and Royden Freeland cranked out the first home receivers; in late July of 1979. They have been able to hold onto the industry reins because they were in a position to keep up with the growth. Now it is growing or perhaps has (it can change that fast!) grown too big for them, and the next level of people to come in here and run things are going to be the big marketing folks. When they can command 25,000 up per annum purchase orders for product, and

snap their fingers and have 400 working dealers stand up at attention, things are going to change.

The Can-AM 83 extravaganza in Minneapolis could well turn out to be a Canadian show held in America; or, it could turn out as a shopping spree for Canadian tourists. Regardless of how it finally shapes up, it will be a one-of-a-kind event which no serious student of the industry should miss. Full information from STTI at 800-654-9276.

SAT SCENE and CSD

Most readers are aware that every SATURDAY at 2 PM (eastern), over on trandponder 18 of F3R, there is a program by and for our industry; the home TVRO folks. That program is put together out in Salt Lake City, Utah by some folks who believe that it is a darned shame that our industry does not use the medium we sell, satellite television, as a tool to keep us up to date on what is going on in our

Way (way!) back in 1978 or so, I was involved in just such an activity. When I was editing CATJ (the cable technical magazine), I would prepare a pair of one hour television shows each month at the University of Oklahoma broadcast journalism department. Actually, we began the first shows by using some studios that SPN (on F4, TR3) had leased in Tulsa, Oklahoma. I tired of driving to Tulsa twice a month and talked the University of Oklahoma into allowing me to use their studios, and some of their senior students. The students got realworld experience and I got to shorten my drive by 90 minutes each

We did two complete seasons of 'Satellite Magazine'. I have the tape masters of most sitting down here on shelves. I slanted the program towards cable TV of course since that was our audience. However, Taylor Howard and Robert Coleman and H. Paul Shuch (among others) appeared on the show with me in 1979, and the first tours of their own respective home TVROs went out on this program. We had some firsts on the program. Dick Campbell of Scientific Atlanta appeared with me in Mid-April of 1979 to announce for the first time that S/A would be in the home TVRO field. They called their service 'HOMESAT' which is why nobody can use that name without

American Microwave Technology, winding up a very successful year of sales, introduces a new company: International Satellite Television (I.T.S.) and a new and exciting product...

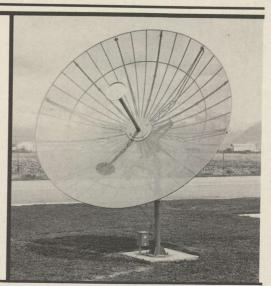
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This new product promises to take the rust and the high price out of the mesh dish and add high performance (gain 40.8 on 10 ft.), good looks and dependable service.

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remain on frequency without attention. The COM-20T is normally supplied with a remote downconverter and tunable audio. Optional configurations include fixed-tuned audio, internal downconverter, and downconverter switching for multi-channel capability. Styling matches AV-COM's popular series of rack mount receivers.



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Cost-Effective Multi-Channel Installations



COM-65T

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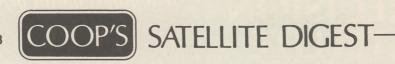
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an ® after it anymore. S/A owns the name. On another occasion Duke Brown of Microwave Associates (now M/A Com) and I spent a day inside of the RCA master uplink and control facility in Vernon Valley (NJ) and we 'exposed' RCA's 'sick bird' story on the program. There were plenty of rumors about RCA having a sick bird in those days, and the cable industry was plenty nervous about there being any truth to the rumors. I dug around and got all of the facts I could, and then Duke and I scheduled a 'tour' of the uplink, ostensibly for the purpose of showing cable operators what an uplink looked like. Right in the middle of this full day tour we sat down with the top management/ engineers of the facility and talked about what we had learned. Into this I dropped my collected set of 'facts' concerning the RCA 'sick bird' story and all of the RCA guys got up and left the room. That left Duke and I, and the camera man that NBC provided from New York City, sitting there looking at each other.

Fifteen minutes dragged by while the three RCA guys were locked in animated conversation the other side of the glass partition that separated us from the control room. Duke was getting nervous about us ending up testing the 40 amp fuses in their uplink klystrons; he said he didn't want to end his life as a 'dead short' for a C band power supply. I finally got up and went outside and engaged the RCA guys in

It seems that I had just enough facts to be dangerous. And, as Duke kept pointing out to me, we were on their turf. First they didn't want to discuss the matter, on camera, at all. I persuaded them that if we didn't discuss it there, and clear the air about the alleged failing satellite(s), the stories would continue to rip through the cable industry with increasing speed. I suggested that here was their golden opportunity to clear the air once and for all. All I asked was that they tell the whole story, and not change any of the facts

And so on an 'issue' of 'Satellite Magazine' the world learned all of the details about a satellite solar panel on F2 which refused to follow the sun. It was supposed to turn a fraction of a degree at a time, every few minutes, so it would always point directly at the sun. Only, during launch, a cable had come apart and a 'rough spot' had developed in the solar panel tracking mechanism. The end result was a satellite that

was indeed sick, requiring daily 'hand nursing' to keep it operating.

When we ran this report on the television program, I had a cable industry leader in the studio to talk with me for a few minutes after the report ran. I asked Ben Campbell what he thought of the report. On camera, he said how much better he understood the problems of satellite operations, and he was sure he would be more tolerant of minor day to day variations in satellite service now that he had been exposed to this. Then I asked him what he thought RCA would think of all of this. On cue, he reached down on a table between us and the camera panned down to reveal a large, white cake with a recognize-

able red 'RCA' iced on top.

"Bob", Ben began, "RCA wanted me to pass along their appreciation to you for making this information available. They have sent you a token of their appreciation and I have been given delivery instructions".

With that Ben carefully picked up the cake and the camera did a slow zoom-out and a pan to me. Just as Ben flipped the cake over in his hand and planted it squarely in the middle of my face.

I don't need to tell you where I got the idea. Yup. Soupy Sales. And so we ended our visit to the RCA uplink. And since the shows ran back in 1978, the tapes have sat collecting dust in my tape bins here on Provo. George Mitchell of Sat-Scene and I have decided to do something about all of this.

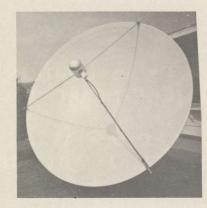
I have never done even a library list of the tapes I have on hand. They begin with some of the 1977 cable shows where, for the first time, the cable industry saw operating TVRO dishes smaller in size than 9 meters. We did some 'testing' of dishes in the 15 foot region at a '77 show, and thanks to those tests the momentum began to get the FCC to eventually drop their requirements that (1) all terminals must be licensed, and, (2) all terminals must be at least 9 meters in size. From there we travel through the 1978 cable show in which Steve Birkill and others helped me do the very first 'amateur' uplink in history; 15 hours of programming, covering a cable show in Oklahoma, that went nation wide to thousands of cable system folks.

By the time we get into 1979, we are really rolling; the original Taylor Howard, Robert Coleman tapes prepared in May of 1979.

DH SPUN PARABOLIC ANTENNAS

We didn't invent or improve anything! We just manufacture in quantity the antenna that has always been best. An aluminum antenna spun to a true parabolic curve.

A spun aluminum antenna is the finest you can buy. The military, NASA, the telephone companies all specify aluminum antennas spun to a true parabolic curve. DH is a national leader in antenna manufacturing, producing over 3,000 antennas a month. Because of their accuracy, a 9' spun antenna will perform as well as an average 10' fiberglass.



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Available in aluminum or steel in focal lengths of 43" or 36" in sizes from 9"

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Taylor tells a great story about his father's problem with a fence in his backyard, and Coleman shows us incredible pictures of an 8 foot dish and a completely homebrew system; including his own, kitchen-table constructed GaAs-FET LNA!

From the first SPTS in Oklahoma in the summer of 1979, through to and including the Anaheim, California show in the fall of 1981, every session ever held is on tape. The first showing of Bob Luly's umbrella TVRO antenna. The first showing of David Barker's image cancelling single conversion receiver. A management guy from The Movie Channel telling everyone to 'send in your \$100 per year; we'll grant you all permission to receive our programs'. I guess there are at least 200 original hours all told. Maybe more.

So effective this past April 23rd, CSD and Sat-Scene had formed a straight forward business alliance. I have agreed to do two things:

- 1) Make available my library of tapes for excerpt use on Sat-
- 2) Participate with Sat-Scene in building an on-going videohistory of the industry from this point forward.

George Mitchell, for Sat-Scene, has agreed to do two things as well

- 1) Exchange with me, for my time and efforts, some advertising time in Sat-Scene, and
- 2) Work with me at future trade shows, and special events, to put



MITCHELL on Provo in front of Coop's CSD typing spot.

together the ongoing history of this industry.

I have decided to do two things with my commercial time. Out of my sixty seconds or so, I am going to use half of that time to put together a series of commercials for CSD and some new books I am writing. The other half? Well, I went to the Chief Minister of the Turks and Caicos (see CSD for March; front cover) and donated to the country 30 seconds of commercial time for 52 weeks. They plan to use this time to air some brand new television commercials extolling the virtues of visiting here, retiring here, or setting up a business here. I get nothing for this but the thanks of the country; which, frankly, is all I want.

As many of you know, I have not been particularily happy since the Anaheim show back in 1981 because show management decided to save a few bucks and cut out videotaping of the seminar events. There is no way we can recreate the intervening show sessions, and it may well be that with the Sat-Scene budget we won't try to tape everything that is going on within the sessions. Rather, George and I agree that we want future show coverage, starting with the upcoming Can-Am 83 show this month in Minneapolis, to be more along the lines of a '60 Minutes' or '20/20' format. Neither George nor I are a Mike Wallace, but as George commented as he screened the RCA visit tape and I bore down on top RCA management for an adequate explanation of why F2 had failed, "I think you would interview Teddy Kennedy and ask him about his sex life!". Probably.

I can promise you one thing. Anything I do for Sat-Scene will be backed with the same devotion to getting at the straight story as I use here in print. Death threats (see CSD Coop's Comments; May 1983)



MITCHELL on the tube; introducing the April 23rd inaugeral piece, from the WIV production studio.

not withstanding. I simply don't know any other way to do it.

Some of what I will be contributing will be shot here in the Turks and Caicos. We'll simply use the existing WIV studios to prepare pieces. Or, we'll be at one of our two outdoor (where else?) antenna testing ranges explaining what we are looking for, and determining, with various antenna tests. For example, there are currently five TVRO antennas from various suppliers on their way to Provo. As we put them together, test and measure them, we'll be videotaping the process. In the months ahead, you'll see the results on Sat-Scene. The big 'Big Antenna Shoot Out' between a Hero 20 footer and an ADM 20 footer . . . will be right there on your screen to see; when it

Then when I am in the states visiting a factory or a plant to investigate their products and the way they work, for reports here in CSD, we'll try to arange to videotape as many of these visits as possible. And show you the tour, just like our fabled '78 tour of RCA's uplink, on Sat-Scene.

I happen to believe strongly in the information value of television as a medium. I am also a realist and recognize that when I am running around with an under \$5000 color camera and a \$1500 portable video deck, trying to run the camera, the deck, the audio and conduct an



COOP and Mitchell discussing one of the industry relics found in the WIV archives; the very first 'Scalar' feedhorn, built by England's Steve Birkill and shipped to Coop in 1979, for use at the Miami SPTS (February 1980) where the industry had its first experience with Intelsat reception.



PAGE 68/CSD/6-83 COOP'S SATELLITE DIGEST-



CLOSE UP of the Birkill created 'Scalar' feedhorn. It will end up in an industry museum one of these days.

interview, that it won't be quite like watching the technical excellence of 'Sixty Minutes'. Fortunately, Sat-Scene is using one of the top two or three independent video production houses in the USA for the assembly of the program each week. They have small 19 inch rack mounting video special effects equipment boxes that cost them more than my house, TV station, and our Tower Plaza cost me. So George can make good use of their fantastic state-of-the-art video production equipment to clean up our 'battlefield quality video' in most cases.

Sat-Scene is commercially sponsored. They have typically 7 commercial spots in their show. A standard 30 second spot costs you \$675 but there are discounts for running more than one spot per year! I've talked with some of the firms that are using Sat-Scene as an advertising vehicle, and I was pleased to find out that they are getting as many as 300 inquires and orders from a single spot. That tells me that lots of people are watching the program on TR18 every Saturday. Right after advertising in CSD, I'd suggest that anyone with an advertising budget give commercial time on Sat-Scene serious consideration.

George Mitchell was down to Provo over the weekend of April 16th. George joined me in Fort Lauderdale, as I was finishing up paste-up on the May magazine, on April 13th. I put him to work, promptly, and he proof read all 96 pages of the May issue on the couch of my apartment while I put the finishing touches on the issue. Once here, after another 'famous' Provo Flying Service flight, we got him into Kevin's 21 foot boat and out into the open sea. Everybody grows humble when they realize they are whizzing along at 50 miles per hour over water that is 600 feet or more deep, and all they can see in three directions is ocean. "England is over there . . . about 2,800 miles" Kevin quipped to George. The last evening George was here, Kevin sat him and I down in a portion of the production studio and proceeded to set up the equipment for the piece that ran on April 16th. Het Kevin do most of the set-ups and direction now for much of what we do down here. Several times George asked Kevin how old he is. He'll be 14 in July. But he's big for his age.

George and Kevin came up with an interesting test for antennas down here. George carefully studied each of the dozen or so TVRO antennas we now have up and operating and pondered about rust and antenna integrity. Kevin suggested that maybe what we should be doing is to attach a line to each new antenna that comes down for test, and, drag it behind his boat for a couple of miles, just to 'break it in' to the salt spray and unfriendly environment. "Suppose it sank?" George asked.

'We simply report that it failed the buoyancy test".

I think George has a better understanding of some of the problems the industry is facing, after his visit. I found George to be very bright, and exceedingly talented in TV production. He should be; he spent more than 20 years in the television broadcasting industry, running a

COOP CONTINUES / page 70

FINALLY, A QUALITY ALUMINUM DISH

**Cimco 12 Foot Aluminum Mesh Antenna

- 4 Foot Spun Center Section
- Mesh Panel Sections are Jig Welded and Installed at the Factory for Absolute Accuracy
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"I was sick and tired of undependable earth station controllers.



I'm an engineer, so I made one myself! I'll stand behind this one.

The best earth station controllers on the market are programmable, reliable, easy to operate and priced right. When I looked closely, I soon found several design flaws which could have been corrected before they were put on the shelves.

It annoys me to see a product on the market before it's thoroughly tested. As an engineer, I expect things to work and keep on working. After all, that's what engineering is all about.

My wife sometimes says I'm stingy. She's right, but I also understand that quality costs less in the long run. So, I keep an eye on every penny and I make sure that our

products are the very best.
My engineers and I carefully designed and tested the Surveyor Eleven— a reliable, dependable, convenient and reasonably priced satellite

Here are the features that make the Surveyor the best on the market today:

2-Year Warranty I know the Surveyor Eleven works, so I'll give you a twoyear warranty on parts and labor. See what our competition offers.

2 Reliability 1 controller uses a true Reliability No other closed loop servo system which gently starts and stops the motor. You get much longer life from your motor, gears and actuator.

The Surveyor Eleven prevents motor burnout by limiting maximum torque and by delaying reversing power.

3 Safety The Surveyor Eleven has UL Registered 90 VDC motor drive circuits.

The red LEDs tell you when your actuator has reached the adjustable maximum limits.

Both red LEDs light up if a control wire is disconnected, saving you the expense of a service call.

4 Fail-Safe Memory The Surveyor Eleven never loses its memory during a power outage. Just set it and forget it. You don't have to remember to change the back-up battery every year.

5 Locks on Target The Surveyor Eleven is immune to miscounting from stray noise pulses.

It's also so accurate within 0.030 inches of dead center) that it doesn't need fine

Settings won't drift because our circuits compensate for line voltage fluctuations, temperature change, aging and noise pulses.

6 Optional Remote Control The optional remote control unit brings the convenience of the Surveyor Eleven right to your easy chair.

Easy Operation The Surveyor Eleven is simple to install, simple to program and simple to operate. One knob selects up to 12

This earth station controller has something entirely new. All the same reliability features you have come to expect in the Surveyor Seven are now in the new Surveyor Eleven-plus three new features that put us further ahead of the pack:

Skew Compensation The Surveyor Eleven automatically and accurately compensates for skew and the backwards Westar satellites.

Polarization You can set 2 Polarization to the Surveyor Eleven to horizontal, vertical or receiver/remote polarization with the turn of a knob. No need for a separate box.

3 Scan Exclusive to Surveyor Eleven is the Scan Exclusive to the Scan function. It allows you to search through all 24 channels for the one you want without switching from horizontal to vertical polar-

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COOP / continued from page 68

whole chain of major market television stations for a sizeale group owner of television broadcast stations. His move from television broadcasting, top management, to the TVRO world is another of those healthy signs that our industry is maturing, and attracting top notch people. We need about a hundred more George Mitchells in the industry to help us get over the hurdles ahead.

INSURING AGAINST Defects?

The frustration of being a dealer.

There is a recently released book on the market that tells you, in title and text, that you can make \$50,000 this year . . . selling and installing TVRO systems. The author, Horton Townes of Satellite America, is one of the few people in this industry who is qualified to write such a book. He does it well.

Unfortunately, for many people entering the business, we are a confusing and largely dis-organized bunch of entrepreneurs. You used to be able to attend a trade show and **learn** the **basics** of the industry; information that helped equip you for that real world when you have to open that first antenna crate and figure out how to make all of those parts assemble into an antenna that has 1/16th inch surface accuracy, and equal or better 'tracking accuracy.' Not any more. You are on your own, and you learn by following somebody around who is already accomplished and who is willing to share that hard earned knowledge and experience with you.

Many new, would-be dealers, enter the field with insufficient funds to stock even their first few systems; **maybe not even** the first system. With money tight, they are naturally attracted to the lowest priced equipment they can find, not yet smart enough to realize that low price usually means the guy doing the installation has to be smart enough to recognize defects in the system, potential down-the-road defects, or parts that are missing. If the \$700 dealer priced systems were everybit as good as the \$2500 dealer priced systems, there would be no \$2500 dealer priced systems. A new dealer has to be intelligent enough to figure out what those differences are, and then translate that knowledge into his own ability to cope with the 'shortfalls' of the less expensive system.

Naturally everyone would like to have an iron clad guarantee that takes them off the hook, when something they buy does not work, when they screw up and make a bad mistake they cannot correct, when the gear works fine initially but then fails in a month or two. There is considerable sentiment that if there was a 'clearing house' in the industry to 'rate' and 'grade' equipment, the life of the dealer would be far better. And safer.

There are several **levels** of problems here. Let's explore each:

A) **The system is not complete.** The dealer, old or new, buys the latest super whammy 'package' and then discovers something is left out. If the missing part(s) were supposed to be there, he

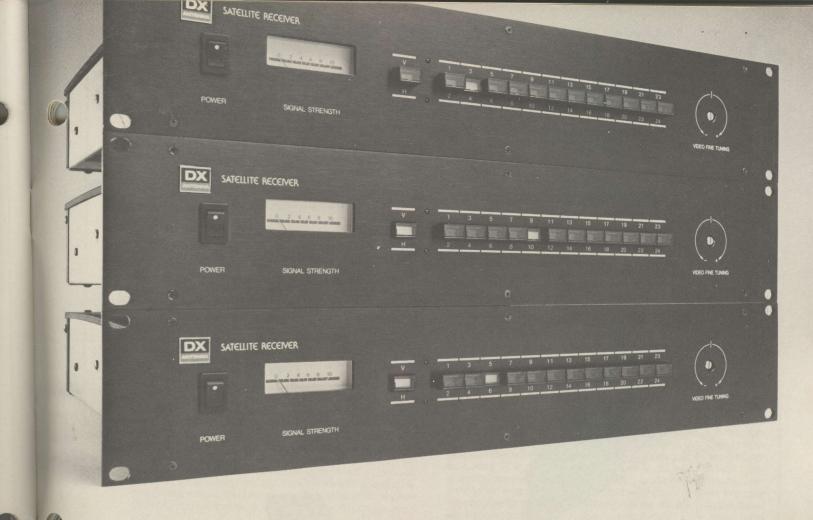
latest super whammy 'package' and then discovers something is left out. If the missing part(s) were supposed to be there, he has to hassle with the distributor/supplier to get what is missing. That takes time, he loses his scheduled installation date, and everyone involved is angry. Or, the system is complete as far as the distributor is concerned but the dealer then learns, after opening the containers, that no modulator nor cables were included in 'the deal'; or, the 'feed is an optional extra', and so on. Now the dealer is angry at himself for not being smart enough, or careful enough, to check out exactly what he was buying to be certain everything was included. He is also angry with the sales person that sold the system since he figures that person shoud have pointed out to him that certain parts were not included.

How do you insure against this type of shortage?

When you have some experience under your belt as a dealer, you learn to ask the right questions; and develop sufficient field experience that you know where to go to pick up a feed or some bolts or a modulator in a hurry. When you are new, and you barely know what you need to do an installation to begin with, you are frustrated and standing there with egg on your face with a dish half installed because now you discover that some hardware is missing.

But is it possible to have an 'insurance policy' to protect you, the installing dealer, against this type of 'shortage'? Probably not.

COOP CONTINUES / page 73



DX Gives You Big System Quality at Small System Prices.

Now you can have top quality performance for a surprisingly reasonable price. The DSA-643 Satellite Receiver from DX features dual, block downconversion—unique for receivers in this price range. The DSA-643 uses a discriminator circuit for signal demodulation; a full 30 MHz bandwidth; and a unique threshold extension circuit. These features add up to a low threshold carrier to noise ratio, commercial quality reception and low cost installation in any system.

DX also provides the DSA-541 Block Downconverter. It features a highly stable ceramic resonator, with a fixed frequency of 2800 MHz. Stability is maintained at a remarkable ± 1 MHz over the entire -30° to $+50^{\circ}$ C temperature range. So you can install the down-converter out of doors, at the dish, without concern for frequency drift caused by temperature changes year after year.

The innovative DSA-643 Satellite Receiver and DSA-541 Block Downconverter are brought to you by DX, one of the most respected names in satellite television reception sys-

tems in Japan and around the world. DX also provides line amplifiers, power dividers, and other block downconversion-compatible accessories.



DX Communications, Inc., A Subsidiary of C. Itoh & Co. (America) Inc., 116 Midland Ave., Portchester, N.Y. 10573 (914) 939-8880

Manufactured by DX Antenna Co., Kobe, Japan.

THE ODD (BUT PERFECT) COUPLE FOR HOME TVRO INSTALLATIONS FROM PATMAR TECHNOLOGIES



The Paraclipse 12-foot High Performance Antenna, constructed of sturdy aluminum ribs with heavy-duty expanded aluminum radar mesh reflector is the ideal home dish because of its ease of installation, light weight (280 pounds in one 18 cubic foot container), and good looks in either aluminum finish or

in baked-on powder coat available in a variety of colors an optional extra. It comes complete with Polar mount wh can be easily motorized and remote controlled.

A complete, top quality, fully automated state-of-the-art satellite system for under \$2,500.00!

Featured at \$895.00

The Intersat IQ-160 System (so named because of its brilliant performance) is a state-of-the-art satellite receiver with separate downconverter, modulator, stereo capability with 12 watts per channel direct to speakers and total infra-red remote control over antenna movement, channel selection, polarity and audio volume control. Its microprocessor has more memory capacity than most home computers. It is encased in a

modern steel cabinet with rounded ends. The face is of attractive etched smoked glass and is devoid of the customary knobs and dials.

\$1,595.00 complete with 120° LOCOM LNA, 24 volt actuator and pin-diode polarizer.

Patmar Technologies also offers many other products for the SMATV and home TVRO markets such as the Harris 3 meter Delta Gain Antenna, Prodelin 3 meter Antenna, DX Receiver and Block Downconverter and the complete line of SMATV and MATV products manufactured by Blonder-Tongue Laboratories.

PATMAR TECHNOLOGIES, INC.

Larry James, P.O. Box D, Claremore, Okla. 74017 (918) 342-1955 For orders call: 1-800-331-8900

Peter Sutro or Bill Heavener, 6 Claremont Road, Bernardsville, N.J. 07924 (201) 766-4408

COOP / continued from page 70

B) The system is complete but you can't make it work. Even an experienced hand has some difficulty determining, quickly, whether a cable is bad, an LNA is bad, a fitting is bad, a receiver is bad, or the dish is not tracking. A neophyte is really on the spot because he is not sure where to start looking for a problem. There may be a bad piece of equipment, or the installer could have made a mistake. How do you tell?

First you suspect the equipment. But if this is your first system, and you only have enough money to stock a single system, you can't substitute a spare LNA or receiver or feed or 213 cable for each part in the original system; you don't have any spares! So there you stand, the system is mechanically installed, but it is not complete electrically because it is not working. This is the supreme test of your patience and ability to stay cool. The customer, naturally, is standing there wondering what you are doing, and whether you are smart enough to make it work. You, down deep, are wondering why you ever got started in this craziness

Is it possible to have an insurance policy against this type of problem? Possibly.

C) The system is installed and operating. Today. But tomorrow it quits. The problem seems to be electrical because there were no heavy winds or ice storms overnight and an inspection of the dish reveals that the structure is in the same format as it was when it was last left, working. First you have to identify what quit working. LNA? Receiver? Modulator? A cable? Perhaps a powering line connection? An experienced hand can check each out without a spare to replace the possible trouble spots. An inexperienced hand needs to swap a known good unit for each of the possible bad units, one at a time, until the service is restored. And that says the installer needs identical or near identical replacement parts in stock. That requires additional operating capital, which he may well not have avail-

Is it possible to have an insurance policy against this type of

problem? Possibly.

D) The system is installed and operating and it operates fine for a period of time. Then it quits. The reason is obvious; the antenna mounted has broken in two because of a storm. The homeowner checks his insurance policy and learns that he is only covered for the dish loss if he has a rider on his policy for an outdoor antenna structure. There is a hassle ahead; several weeks of waiting for a claims adjustor, more weeks of waiting for approval, and the check. The customer knows that he is either going to get an insurance check, or, he will pay for replacement/repair himself. He asks the dealer to fix or replace the broken structure, but also asks that he be allowed to wait to pay until he sees whether the insurance check comes through. The dealer, in effect, becomes a financing agent for the period of time it takes to straighten out the insurance. The dealer is under some pressure to perform; his reputation is on the line. But he is not about to finance the insurance company either. And there is always the possibility that the customer will have his insurance claim turned down, and then the dealer will have to deal with the customer directly for the funds.

Here we have, we believe, insurance protection. But the situation is complicated by its newness. The insurance agent has never processed a claim for a broken satellite dish before; he is not sure whether the company will pay it or not. Maybe . . . just maybe, the installation was defective and the dish came down in a wind which should not have damaged the dish. Did the dish and mount have a structural wind-load guarantee? Did the manufacturer warrant that the dish would withstand winds to a certain speed before coming apart? Was that wind speed officially recorded or exceeded when the damage took place? Did the installing dealer follow the manufacturer's engineering drawings in installing the dish, or did he use too thin concrete to too small lag bolts or too light steel pipe? You say the steel support pipe for the dish was missing from the shipment, so the dealer went ahead and found a substitute pipe locally? What is the rated

COOP CONTINUES / page 76



see CSD for June '82 and April 1983!

Paraclipse

HIGH PERFORMANCE SATELLITE TELEVISION SYSTEM

Survival of the Fittest

Success in the satellite television antenna jungle has gone to the strongest, most efficient, affordable and prolific design available; Paraclipse. We've earned our success by

We've earned our success by offering a product of consistent high performance, structural integrity, operational simplicity and availability. The Paraclipse 12 (3.8 meter) is simply unsurpassed in overall performance and value.

A New Generation

The TVRO industry is experiencing a period of phenominal growth and it seems that hardly a week goes by that someone doesn't introduce a revolutionary new antenna. This week it's our turn. We call it the Paraclipse 2.8 meter.

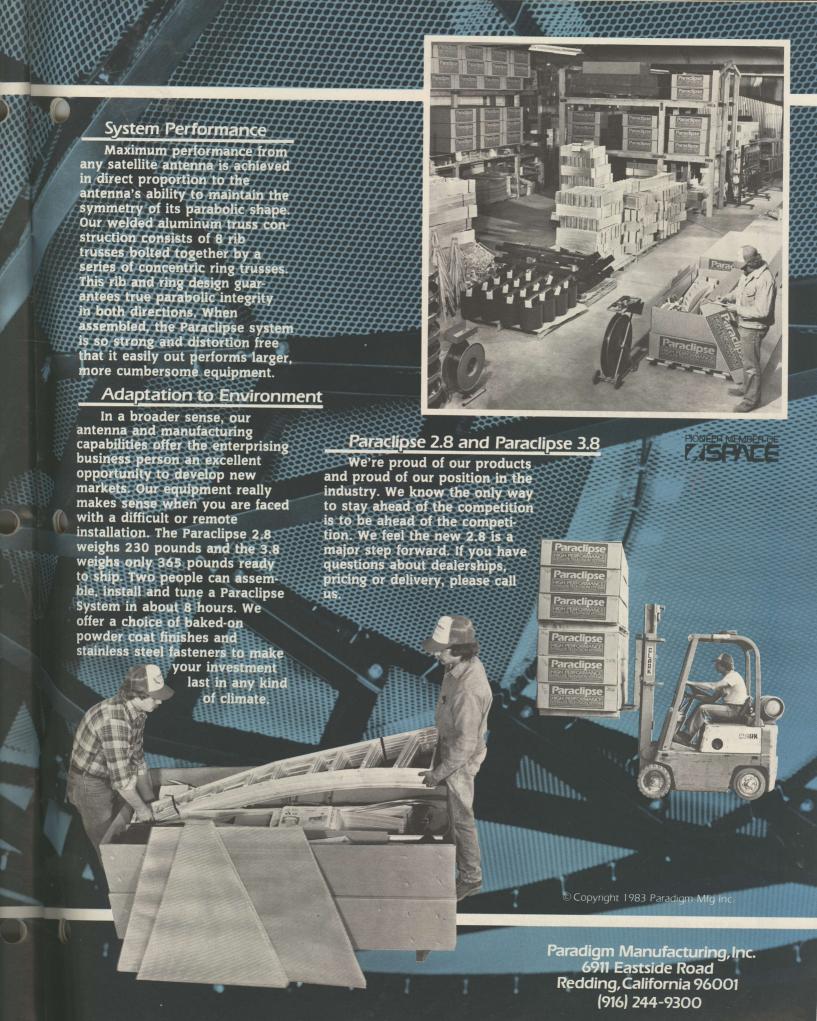
More evolution than revolution, in that it is derived from the same design concepts and is engineered to meet the same performance criteria as the original Paraclipse 3.8 meter. The new Paraclipse 2.8 is designed to bring satellite television to an even larger audience.

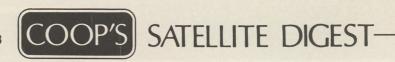
Natural Selection

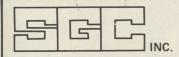
We've refined and condensed a very successful design, maintained all the performance characteristics and construction standards of the original and made it easier to own. The Paraclipse 2.8 is lighter, easier to install and operate, and stronger than the 3.8.

Our ingenious new hub design makes assembly easier, increases structural integrity while it reduces weight. In every aspect, from manufacturing to marketability, the new Paraclipse 2.8 represents excellence in engineering and performance.

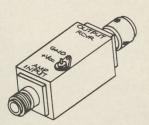








D.C. POWER INSETER BLOCK



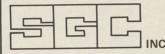
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- V.S.W.R. 1.45:1
- D.C.B. AS 15-25 VOLTS, 0.50 AMPS MAX
- CONNECTORS TYPE-N

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COOP / continued from page 73

strength of that substitute pipe? Is THAT why the dish fell over??? Is it possible to have a clean, clear-cut insurance or warranty policy to protect the dealer in this situation? Again, possibly.

E) The system is installed and operating. And it works fine for a new months, and then it quits. The problem appears to be electrical. After some substitution and trouble shooting, a defective receiver is found. The dealer knows that the manufacturer will fix it, in or out of warranty, but he is faced with having to tell the customer that he cannot replace the receiver until this one is repaired. That may take two, or three weeks. The customer is not very happy with this, and he reminds the dealer that he, personally, has 'sold' four additional systems to 'friends', for the dealer, and he 'expects' to be treated better than that. "Surely you have a spare receiver you can stick in here?" he deands. The dealer is in an equipment crunch. He finally ends up taking the receiver out of his home installation to keep the guy happy. Now the dealer has an unhappy wife and family to contend with!

Is it not possible to have an 'almost-instant-replacement' system in operation, with which the dealer can get a replacement into town overnight while the original is being repaired? Is that not some type of warranty program which the dealer deserves, and the distributor or OEM could live with? Isn't this just another form of insurance? Possibly.

The ideal situation might be as follows:

- A) A dealer has instant access to technical help, at any reasonable hour of the day, seven days per week. If something is not working right, if some parts seem not to be in the carton, instant telephone help. A master clearing house for technical backup and parts, when required.
- B) No matter what does not work, or what breaks, there is an overnight shipment on the way to the dealer. He returns the broken piece the same way, the same day.
- C) No matter what happens to the system, once in and operating, the dealer has a full, 100% service policy backup which he has in place with the customer. If a part quits, instant replacement of that part for the term of the service agreement. If the system breaks, instant replacement of the broken section or the full antenna.

Insurance. Virtually all states have insurance laws which prevent you from selling 'insurance' unless you are a licensed insurance broker or agent. But service policies, such as you have offered to you by Sears or your local RCA dealer when you buy a new TV set or VCR, are another matter. They can be sold, and put into effect, by the selling dealer

Ideally, the dealer would be the seller of the service policy, and he would also be the 'claims adjustor' if there is a problem. That eliminates the hassle of waiting for an insurance adjustor, going through his own 'learning curve' while the adjustor figures out how to 'beat down' the claim to a low dollar figure (thereby protecting the insurance company that wants to keep its losses to a minimum), and the uncertainty of whether a claim will be paid, or not.

Ideally, the dealer would not only get the equipment he needs to repair a 'downed system' but he would be paid for his service and re-installation time as well. Provided he did the original installation correctly, and he is not simply getting paid for his own learning curve.

There are at least two major problems with all of this. Number one, somebody has to pay for this service policy. Suppose the policy that insured/warranteed the system against any and all defects of any type of a year cost the TVRO **system owner** \$150 per year. Or, \$13 per month. Could the dealer 'sell' it? What would the incentive be for the dealer?

- First incentive he might get a share of the service policy fee.
 A 'commission' for selling the service policy.
- 2) Second incentive he might be entitled to attend a 'closed training session' that gives him a day or two of hands on installation training experience, so as an 'agent' for the service policy he could be a better, smarter, installer.
- Here is the big one. When something goes wrong, he has full backup with instant replacement equipment and technical assistance if required. Best of all, he would be paid, within say

ten days, for his field work. If he installs a new mount, he gets a replacement mount plus he gets paid for his time and labor. If he replaces a receiver, he gets a replacement receiver plus his time and expenses for replacing the receiver.

All of this 'might' be possible with a properly created industry wide 'service policy' program. Now the second problem.

Not every piece of equipment on the market would qualify for a

service contract. An antenna that has a poorly designed mount, for example, would not qualify. The insuring/service policy group would, I am sure, want to do extensive testing on any parts which might be included in packages of gear that would qualify for service policies. The dealers have been asking for some sort of 'Consumer Reports' testing program and in a sense this is what is involved here. Such a testing program would be concerned with two things, as I see it:

1) The long term reliability of the product (i.e. will it hold up with regular use for several years, without defects?), and, 2) The suitability of the product for TVRO service.

If the group offering the insurance/extended service policy were going to make it fly, they would have to be pretty sure that they were not insuring products which have built-in defects. I know of no way to do this but to look at the products themselves, put them through some sort of rigorous testing program, and then go back to the manufacturer with their findings. Perhaps in some instances the manufacturer would opt to change something so that his receiver or LNA or feed or antenna (etc) would qualify for the program. Perhaps in other cases the manufacturer would dispute the findings and open up his own service and warranty records to the group to attempt to convince them that the test findings were not representative of field use problems. In either event, a product that passed these tests would then reach the dealer as a product that the dealer knew he could include in an insurance/extended service policy package. This helps the dealer make his own

out to be bad inspite of all of the testing. Now the dangers in all of this.

Man is a very political animal and I can see the group that does the testing being placed under intense pressures from members of the industry. Some manufacturers would disagree with the whole premise of insurance and extended service policies, and simply refuse to submit their products for test. Some of those taking this approach would be fearful of a 'super agancy' testing everything in sight; others would be afraid that their products might not pass the tests, and rather than have it be known that their products failed the tests, they would prefer to simply not submit the products.

buying decisions, and it takes him off the hook for product that turns

Others would recognize that such a program could greatly benefit the dealers, both established and new, and they would be anxious to have their products included in the approved list. Getting 100% support for such a program is unrealistic. If the industry had 25% of the manufacturers supporting it in the first 12 months, it would be doing

very well indeed.

There are other 'pluses', and 'minuses', as I am sure I will hear. Let me report to you where this program might be, as you read this.

Armed with the statistics from the April issue Product Survey, I have met with some people from the insurance industry. I have their interest, and we are dealing with some of the larger world wide insurance firms. Their posture in this is that because of state laws governing the sale of insurance, it cannot be called an 'insurance policy' or 'insurance program'. It will have to be something which implies insurance but which really says 'extended warranty' and 'service policy'. Getting some concrete interest from the insurance world is the first step since somebody with this type of experience will have to underwrite the whole program. I get the impression that there may be several firms involved, spreading the risk as it were, the first

If there is a way to get the underwriting for the program, the next step is to talk with some of the manufacturers of system components and systems; to get their inputs. And ultimately their support. I'm not quite sure how all of this should work, mechanically, yet, but I am holding preliminary talks with a handful of OEMs now to get their reactions. At the moment, the OEMs (original equipment manufacturers) may have the best 'records' to study; assuming they keep accurate tabs on how many of their units fail in the field, and come back in

COOP CONTINUES / page 80

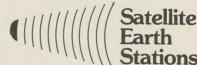
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	1.75°	1.33°	1.°	.8°	.7°
	32-25 Log 0	32.25 Log 0	32-25 Log 0	32-25 Log 0	32-25 Log 0
G/T at 20° Elevation (with 100°K LNA) F/D Radio	21.04 db	22.06 db	24.08 db	25.7 db	27.6 db
	0.30	.30	0.375	0.375	0.365

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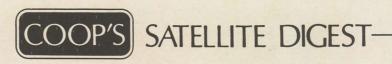
What this means to you, the dealer, is simply this. Now you can install a 10 foot system where only 13/14 foot system would previously play. Or, now you can install a 13 foot where only a 15/16 foot would previously perform. This is no small accomplishment!!!

This is such an important breakthrough that now, hard to serve areas such as the Caribbean can have superb performance on virtually all of the U.S. **DOMSAT** birds. As important as this may be to your fringe area installation business, there is more good news. The **PRICE**. Our 10 and 13 foot antenna with horizon to horizon motor drive and additional high quality features is priced less than any other low performance antenna of comparable size.

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COOP / continued from page 77

for repair work. Getting them to share that information will be imporant, even if it is shared in confidence, since the insurance folks are not about to establish an underwriting program without some history to go on. If they have too little data, what they will do if they decide to underwrite it is to set the service policy premiums high enough that they feel they cannot be 'hurt' by an unknown claims factor. If they have reasonably good data on which to base their potential-claims study, we are more apt to end up with reasonable and appropriate 'annual rates' to pass along to the consumers. If the data they have is inadequate, you can be sure they will increase the rates to cover themselves in case there is an unknown 'risk factor' involved. This is where the dealers, the distributors and the OEMs come into the act.

You may feel you have been surveyed to death of late (well, we had **one** back in April). I am asking readers, at all levels, to give us a few minutes of their time once again to help us build a decent data base to take to the insurance underwriting folks. A form appears in this issue (pages **31** and **32**) and it asks for specific data on equipment **failures**. We don't care, here, **who** was at fault; only that certain types (**not brands**) of equipment failed, and how often it failed. For example, if you are a dealer, you will be asked to tell us what percentage of the time you receive incomplete antennas, motor drives, and so on. What percentage of the time a receiver fails to work when it comes out of the box, after 90 days of service, and after a year of service. And don't underestimate either; if we mis-lead the underwriter folks with faulty initial data, we'll all pay a big price in year two of the insurance/expanded warranty program!

This may sound as if **CSD** is behind an insurance 'scheme'. Let me assure you that this is not the case; I am merely intrigued enough by the **possibility** that we may have a way here to get the dealers, and the distributors, and even the OEMs off the 'hot seat' that I want to pursue it until we either have a program, or, find out that we are (as an industry) still too dis-organized to have a responsible field warranty program available to us. If something comes of all of this, it will be **strickly voluntary at every level.** If the program is properly structured, it will be a good option for all of us.

Why not turn to pages 31 and 32 right now and complete that form. It will be an important part of the study now being conducted, and your input is very much needed.

READER Contest Voting

For the past year CSD has been running a 'reader/author' contest. The idea was that people, subscribers, have interesting material to contribute to CSD and we wanted to encourage as much input as possible.

Any subscriber can submit material for publication. If selected for print, the author immediately gets a 12 month subscription renewal to CSD. Then once per year we hold a readership voting contest and allow all readers the opportunity to vote for their favorite (most useful, most enlightening, etc) reader-contributed article of the past 12 months.

In this issue, at the end of the two page form asking for data on equipment failures in the field, we have tacked on an additional section where you get to vote for your favorite article during the past year. We will tabulate the votes on July 1st and the reader-author who gets the most votes will then be awarded an expense paid trip for two people to Providenciales and WIV-TV. Not a bad deal!

The winner will be put up at the Provo Island Princess Hotel, enjoy the great island life and spend a few days getting the opportunity to see how we operate the national television network down here. You'll read about the winner's trip in CSD and probably see and hear the winner on Sat-Scene magazine (F3R, Saturdays at 2PM eastern, TR18). The lucky winner will probably have the trip of his life (I'd say his or her, but we had only male entrants this year). That is a not so subtle hint for those who would like to be awarded the same prize in 1984 to get busy creating an article or two for CSD to publish in the coming 12 months.

So when you are filling out the equipment reliability survey form on pages 31 and 32, or even if you don't fill out those forms, complete the reader voting section of the form on page 32 here. Right next to it, on page 30, is a quick synopsis of the in-the-running articles for 1983, just to refresh your memory on what was said, and by whom.



KLM's Sky Eye IV Satellite TV Receiver

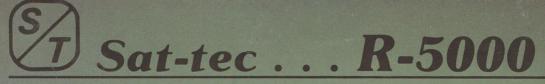
Superior design and engineering mean unsurpassed performance at a very reasonable price. Picture quality, electronics, ease of operation and installation compare with units costing much more. The **KLM Sky Eye IV** features slide-rule tuning, signal strength LED bar, "Center Tune" LED, AFC and video polarity control, fully tuneable audio (5.5-7.5 MHz), and remote downconverter. State-of-the-art single conversion/image reject circuitry, with SAW filter, produces sharp, clean, bright video that makes even big screen and projection TV look better than you've ever seen it before.

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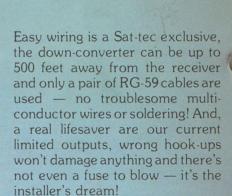
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